JUNE 26, 1961

PAPER TRADE JOURNAL

How Finnish Mill Gets Less Odor, More Chemical From Black Liquors

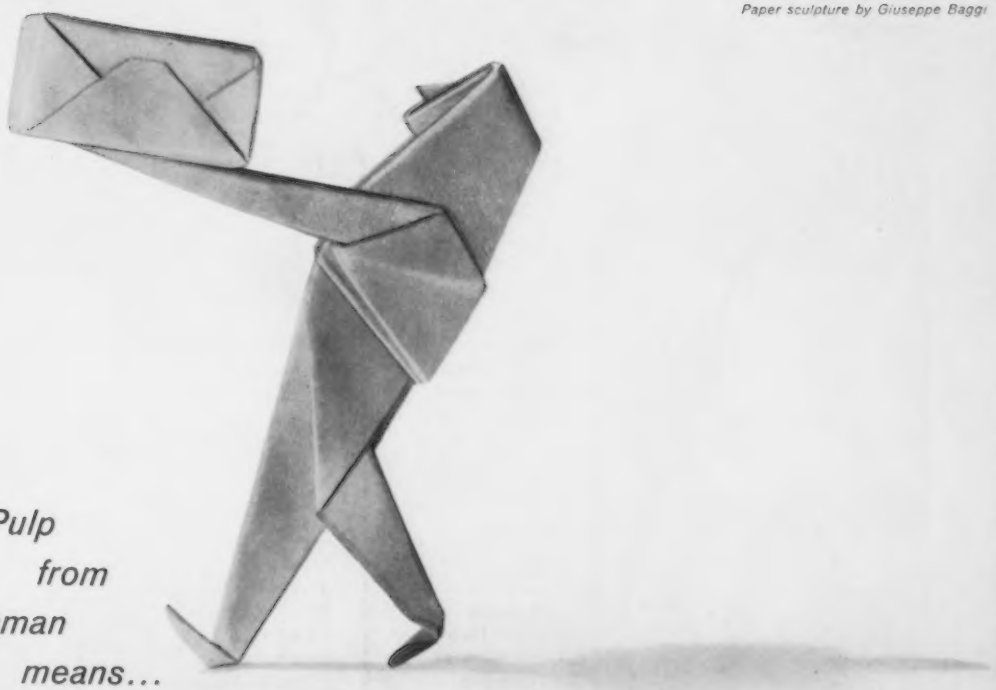
Some Answers to Puzzling Queries Of Merchandising Paper Products

Exploring Problems of Handling Materials in Stock Prep Rooms

New Progress in Production and Uses of Fibrids and Textryls

Contents of the Week, pages 4-5

Paper sculpture by Giuseppe Baggi



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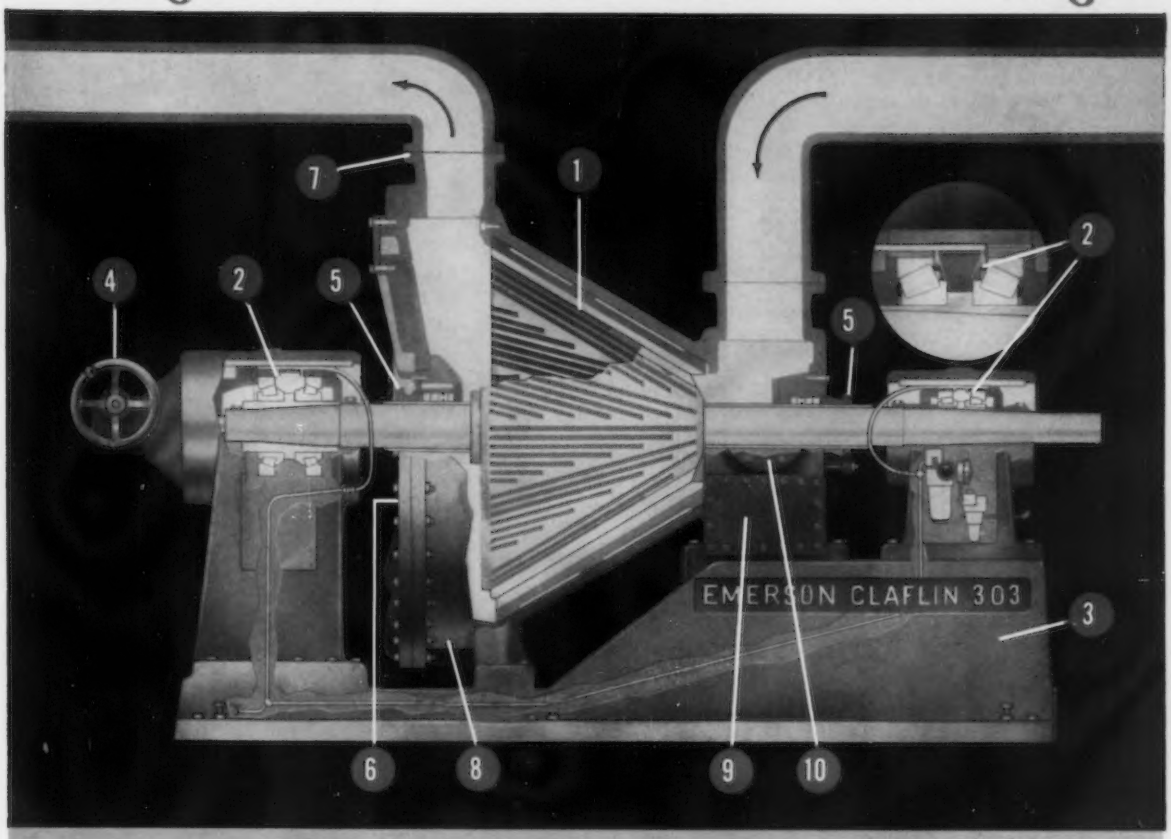

1. Wide tackle selection **2.** Oil mist lubrication **3.** Sturdy construction **4.** Micro-feed plug positioning **5.** Water-cooled packing boxes **6.** Large 2-piece head **7.** Stock outlet cast in shell **8.** Tangent cleanout **9.** Sand trap **10.** Hand hole

In stock preparation, no conical refiner can match the results obtained from the Emerson Claflin for several reasons. For example, a wide choice of tackle enables selection of just the right one to give you the desired physical results regardless of the furnish being run.

For high development — Develomax sectional or fabricated fillings
For rough stock refining — cast fillings
For defibering and refining — deflector type fillings
For controlled cutting and defibering — stainless steel fillings
For rejects — dam type or abrasive fillings
For maximum refining — lava fillings

Operating performance is another reason. Claflins are equipped with a built-in oil mist system of continuous, automatic lubrication, which feeds both double anti-friction roller bearings from a single reservoir. Constantly flowing oil mist keeps dirt out, conserves oil, eliminates lubrication downtime.

Sturdily built throughout, Claflins withstand up to 100 psi with virtually no vibration. Positive control over plug settings is held to .0005 inch by micro-feed handwheel adjustment. Coupling has full travel slide feature. One setting lasts the life of the filling. Water-cooled packing boxes protect against stock leakage.

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Widely recognized for its extreme versatility, the Emerson Claflin is proving daily its capabilities on an unlimited range of furnishes — screen rejects and fine papers, bag, wrap and multiwall, tissue and towel, corrugating, food and container board, boxboard and liner board, boxboard filler, roofing, hot stock and others.

Four sizes of Emerson Claflins cover an HP range of 5 to 500, RPM range of 350 to 1200 and tons per day range of 1 to 200.

For best refining, better look into the Emerson Claflin. Send for descriptive bulletin to The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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Week of June 26, 1961
Vol. 145, No. 26

FEATURED THIS WEEK

Novel Ideas in Kraft Recovery Reduce Losses, Odors for Finnish Mill

Two of these—an electrostatic precipitator operating at nearly double normal temperatures, and a two-stage venturi scrubber—have afforded Rosenlew high chemical and heat recovery, plus a reduction in kraft mill odors —Aimo E. Perttula **20**

Analyze Your Handling of Raw Materials To Stock Preparation

Step-by-step approach to solving various problems of transporting raw materials to and into stock preparation equipment— Henry H. Treuting **24**

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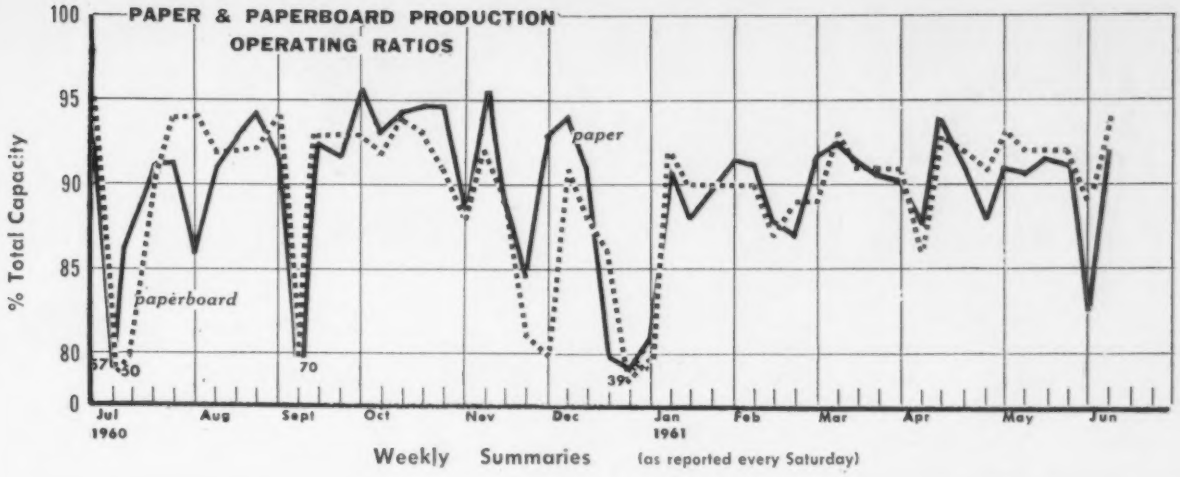

NEWS OF THE WEEK

Swedish Cellulose Buys Interest in Spanish Mill . . . Rothesay Paper Mill Starts This Summer . . . Ex-Im Bank Authorizes Loan for Greek Fiberboard Mill . . . Newsprint Made in South Africa for First Time .....

Rayonier Shifts Mill Executives . . . Powell River Executive Goes to Eddy . . . Thibodeau, Wightman Join Gulf States at Demopolis . . . Consolidated Water Power & Paper Co. Fills Quality Control Posts . . . SFI Adds to Growing Executive Staff at Snowflake .....

O-I Opens Packaging Research Laboratory . . . Lord Baltimore Press Elects Executives . . . Littlefield to Manage St. Regis Panelyte Div. . . . Stone Container Promotes Blue and Meehan . . . Bemis Names Director, Product Development .....

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REMEMBER THESE DATES

TAPPI Lignin Symposium, Edgewater Beach Hotel, Chicago, Ill. — AUGUST 14-16

TAPPI Corrugated Containers Conference, St. Francis Hotel, San Francisco, Calif. — SEPTEMBER 6-8

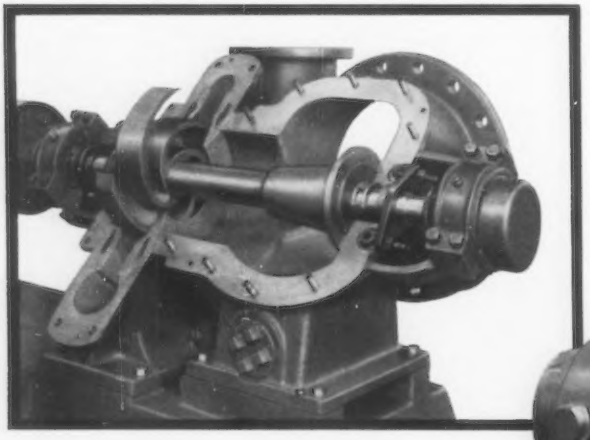
Here's What Users Say about B-C *HMSS Stock Pumps*

"We have found it to be easily maintained and highly effective in pumping stock to consistencies ranging from 2% to 9 or 10%."

Mason Hinkle
The Mead Corporation

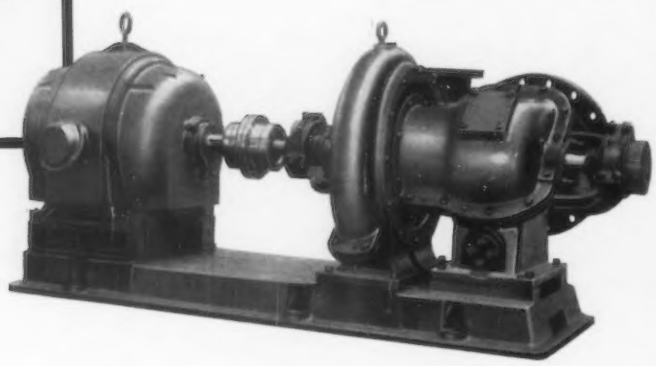
"They are giving us good service."

R. P. McDonald
Fibreboard Paper Products Corp.



"Our men like it very much. We have no hesitation in recommending it as a premium pump."

Victor E. Fishburn
Burgess Cellulose Company



"Our people have nothing but praise for them. The fully diagonally split casing lends itself to quick dismantling and reassembly for repairs when needed. This is very seldom as we have found these pumps to be very dependable and maintenance free."

Potlatch Forests, Inc.

"We buy HMSS pumps because we can depend on your engineering and spare parts service."

D. G. Estebo
The Mead Corporation

No wonder mill men like it. It's the one centrifugal stock pump that was especially designed for exclusive use in paper and pulp mills.

The HMSS side suction pump is different... has anti-friction bearings, wear plates at each side of the impeller and a separate suction and discharge casing, fully split for quick opening. Full range of sizes ... capacities from 75 to 5000 G.P.M.

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Middletown, Ohio
COMPLETE STOCK PREPARATION SYSTEMS

BLACK-CLAWSON

Control slime the new, effective, low-cost way

Just this much C2® slimicide for a ton of pulp!

- Newsprint
- Unbleached, semi-bleached and bleached kraft
- Food and paper board
- Printing and book papers

EFFECTIVE. Extensive mill use proves conclusively that C2, the new Mathieson slimicide, is the most effective product for acidic white water systems. Only ¼ pound of C2 per ton of pulp (often even less) is a common dosage rate for rapid, sustained control. Actual cost per ton: about 10-20¢. Resultant action: continuous generation of chlorine dioxide throughout the white water system . . . a distinct advantage over other slimicides which function only near point of application.

Other C2 advantages: no foaming at the head box . . . will not darken pulp . . . will not affect dyes at recommended dosage rates.

EASY-TO-USE. C2 is readily soluble in water and is non-corrosive to equipment.

C2 is shipped in highly-soluble, dry-flake form in quantities from one-pound samples to 100-pound drums in truckloads and carloads. Also, 50% solution is supplied in tank cars and trucks.

FDA CLEARANCE. C2 is our trademark for sodium chlorite. The Food And Drug Administration has expressed the opinion that this chemical is not a food additive when used as a slimicide as it cannot reasonably be expected to become a component of food through this use.

See C2 work in your mill—call for a demonstration.

Olin Mathieson, Baltimore 3, Maryland

CHEMICALS DIVISION **Olin**

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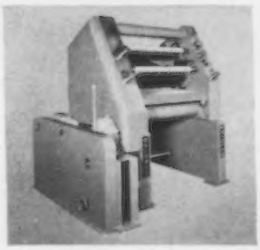

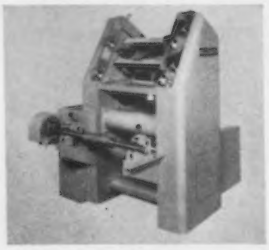

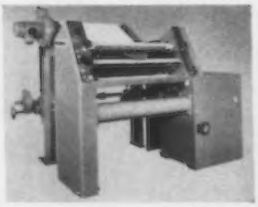

Gummed Paper
Vinyl Coating
Hot Melt

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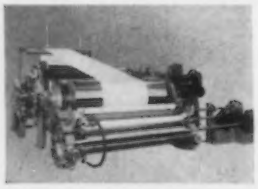
Chart Paper
Solvent Coating



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Film Casting
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PRECISION

reverse roll coating machines

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Complete coating installation including web handling, ovens, embossers and laminators are engineered and built by experienced and skilled technicians.

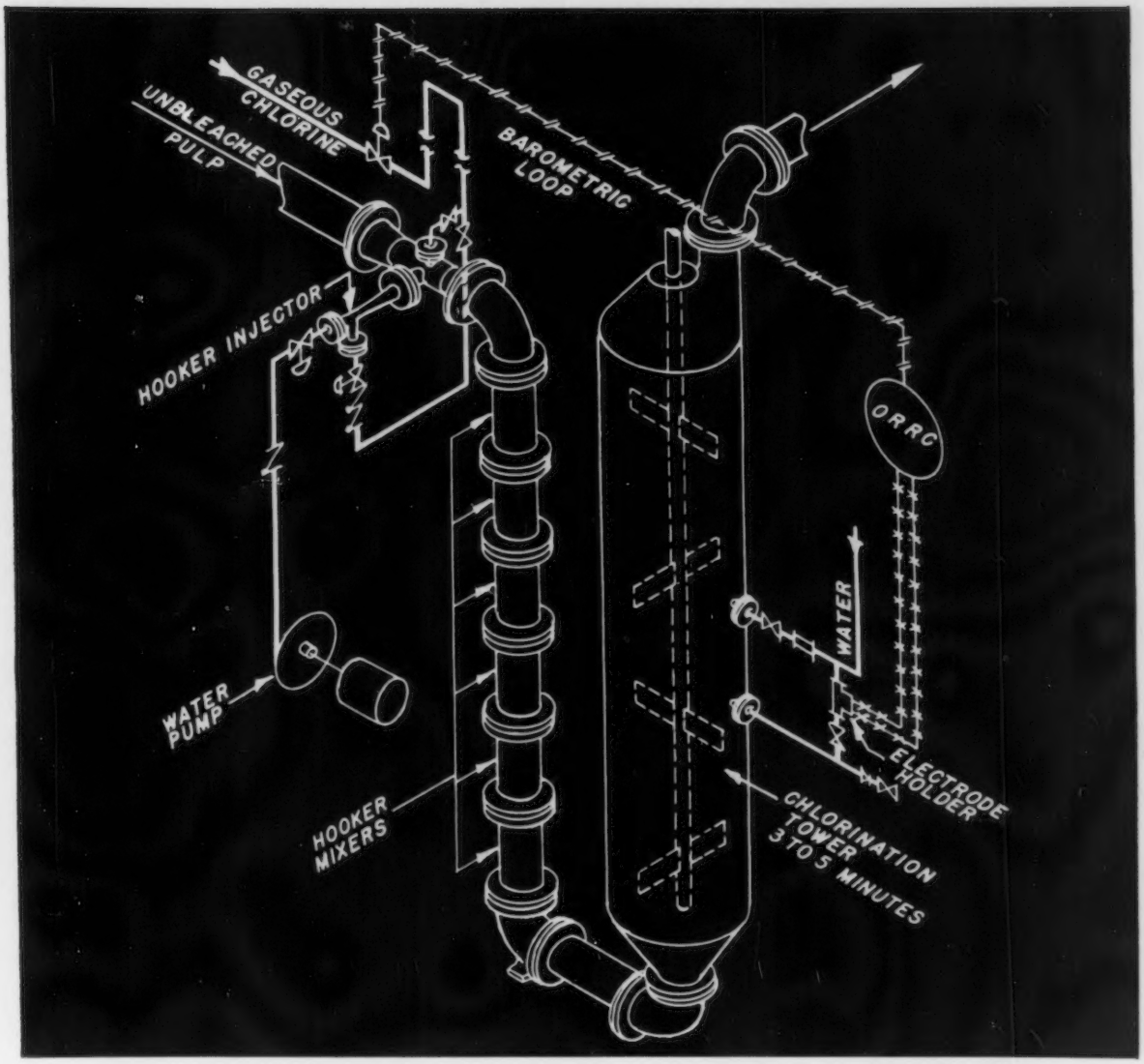
A full range of standard 3 roll and 4 roll designs from "pilot plant" size to 154" widths are available. Write for specifications.

Laboratory facilities are also available for your use in evaluating Waldron equipment.

WALDRON

technical competence in web process machinery

WALDRON-HARTIG, Box 791, New Brunswick, N. J./a division of Midland-Ross Corporation MR



New package whips the variables in pulp chlorination

The first requirement for uniform pulp quality, high pulp strength and high brightness is optimum pulp chlorination—exactly the correct amount of chlorine for each pulp fiber.

Optimum chlorination is accomplished by three steps—each interdependent and equally important:

1. Rapid solution of gaseous chlorine in the pulp slurry—the Hooker chlorine injector is designed specifically for this. Maximum use is made of water energy to atomize the chlorine for rapid, uniform solution in the pulp slurry.

2. Uniform distribution of chlorine solution around each pulp fiber—Hooker stock line chlorine-pulp mixers break up the fiber clumps and distribute the chlorine solution uniformly throughout the pulp slurry. An agitated reactor holding the stock an additional 3 to 5 minutes supplements the stock line mixers. Efficient and continuous mixing is assured throughout the first few critical minutes of the reaction. Each fiber receives the same amount of chlorine.

3. Automatic control of chlorine addition by redox potential—ends the guesswork in chlorine application, reducing chlorine consumption and improving pulp quality. Successful redox control requires efficient chlorine injection and thorough chlorine-pulp mixing.

Hooker technical service engineers will help you design and install the Hooker chlorine injection system, Hooker stock line chlorine-pulp mixers and supplementary reactor, and the redox control system . . . For the full story, write for Bulletin 258: "Improved Pulp Chlorination."

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- here's a way to safeguard BOTH . . .
PROFITS

• *check your crowns* • *check your nips*

• *check your pressures with the*

S-W NIP-WIDTH TESTER

As you probably know, a ¼" variation in nip width may indicate as much as 150 lbs. of localized *extra pressure.*

When your rubber roll is installed it is too late to change the crown. Yet, with the S-W Nip-Width Tester you can tell in advance how your rolls will perform. Results are improved processing and considerably longer roll life. These, of course, help profits.

For information about the S-W Nip-Width Tester get in touch with your S-W Sales Engineer.

75th YEAR S-W INC.

- proved in over 100 mills in the past 2 years
- accurate readings plotted on graph paper permit adjustments to improve processing

more tons from every cover because of technical leadership

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Trends

Paper and Board Topped '60 First Time

Paper and paperboard output during May exceeded the output for May 1960, making the first month this year to be ahead of the same period in the previous year. Although accurate figures are not available it appears that total paper and board was up 3-4% over May last, paper was up 1-2% and paperboard 5-6%. Estimates by APPA show total production for the first five months of 1961 was 14.36 million tons, 2% below the comparable 1960 period. Paper production was 6.51 million tons, a decline of 2%; paperboard was 6.63 million tons, down 1%; and construction paper and board was 1.22 million tons, 8% below last year.

Folding Boxes Ahead in May

For the first time this year, shipments of folding cartons have topped year-ago levels, according to the Folding Paper Box Ass'n. Dollar volume of carton shipments in May was up 2% from the same month last year and tonnage was 3% higher. New orders for boxes in May were 5% ahead of May 1960.

Newsprint Sets May Peak

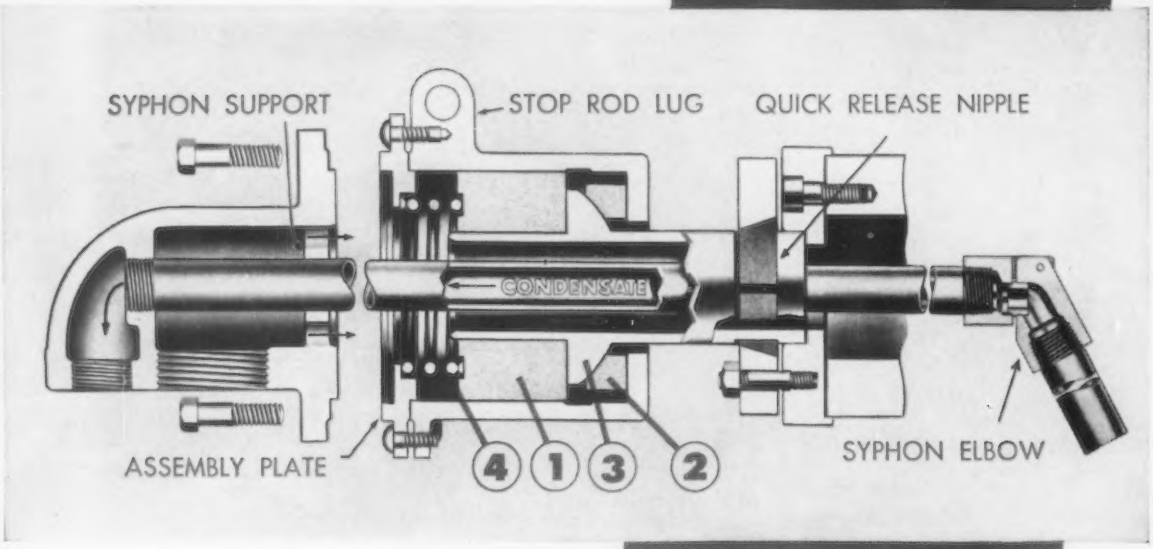
Production of newsprint in North America during May 1961 amounted to an all-time peak for this month, and was 6% above May 1960. According to the Newsprint Service Bureau, U.S. output was at a historical May high, and comparison with May 1960 showed a gain of 7%. A record May production in Canada also, was 5% above the year-ago level.

Most Regrettable Price Cutting Now

The improvement in paper, board, and box demand reported in several items above does not necessarily mean better financial times for our industry. As the quarterly financial reports published in this magazine have pointed out, time and again, our problem is not sales volume but profits, and they are not directly related. In recent years rising or steady sales have produced declining profits for most paper companies. Frequently in recent years Paper Trade Journal has emphasized the need for more realistic price policies by our industry. Last week in the face of an upswing in paperboard demand, one of the largest producers of kraft liner board has cut the price on this product by $10 a ton. It was explained that the price reduction was made to meet "under the table" price cutting which has prevailed for some time. The strong rise in demand for paperboard would soon have eliminated the "under the table" dealings, while an official price cut is much more difficult to eliminate. A truly statesmanlike action at this time would have been a modest price increase. If, on no other basis, such a rise could be justified because of the current increase in labor rates as a result of recent negotiations. In the Northeast and Lake states the increase seems to be averaging out at around seven cents an hour plus the usual additional fringe benefits.

There's lots of good news in this rotary joint

SUPER
TYPE SDP
JOHNSON JOINTS
with
"quick release nipple"
and Johnson Syphon Elbow



First in the Paper Industry

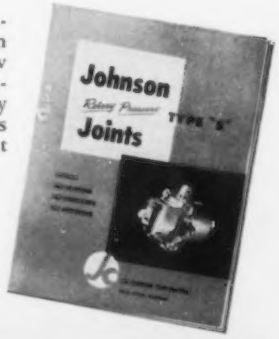
Only 4 Internal Parts
Guide (1) which supports joint, and Seal Ring (2) are both of special carbon-graphite. Nipple (3) seals against ring. Spring (4) is for initial seating only.

Simple, Time Proved Design—Has the famed Johnson packless construction, needs no lubrication or adjustment, is completely self-supporting. The rotating assembly has only four simple parts, which means fewer breeding places for trouble, easier field servicing.

SUPER Construction—Teams "Green Streak" seal rings, of much harder and denser structure, with special Ni-Chrome plating on wearing surfaces. Results: greatly improved friction characteristics and much longer service life.

Quick Release Nipple—Utilizes powerful wedging action to lock nipple securely to journal. Greatly simplifies installation and removal—ends danger of damaging nipple with heavy wrenches.

Johnson Syphon Elbow—Replaces unwieldy, long-radius condensate syphon pipes with two simple straight pipes. Elbow hinges to pass thru joint, closes to leak-tight seat when in position. Note assembly plate on joint, which holds internal parts in position when head is removed to get at syphon pipe.



We will gladly furnish a pair of these for 90-day trial in your mill. *For complete information write for Bulletin "S".*

Rotating syphon pipe? *Write for Bulletin "N".* Johnson Joints are available in types and sizes to meet all operating conditions.

THE JOHNSON CORPORATION
828 WOOD STREET • THREE RIVERS, MICHIGAN
Rotary Pressure Joints • Direct Operated Solenoid Valves

PAPER TRADE JOURNAL
WEEK OF JUNE 26, 1961

Alaska Pulp Expansion Plan Shelved by Georgia-Pacific

Georgia-Pacific Corp. has shelved its proposed plans to expand its pulp and paper facilities in Alaska. Instead, the company will further expand its Samoa, Calif., properties, according to James L. Buckley, president of Georgia-Pacific Alaska Co., a subsidiary of Georgia-Pacific.

"Economic conditions are adverse for going ahead with the Alaska development at this time," Mr. Buckley said. "Changes in economic conditions and technological developments in the next few years may make the Alaskan project practical and desirable at some future time."

"We have large quantities of Redwood and Douglas fir waste material from our plywood and sawmill operations in the Eureka-Samoa area in Northern California that can be converted into pulp chips at a very low cost," Mr. Buckley declared.

"Through research, we have recently determined that Redwood chips, particularly, make a high grade kraft pulp. The economics for such a development are far more favorable than the Alaska development at this time and we have decided to take advantage of our California opportunities rather than going ahead with the Alaska enterprise," he added.

"A plant site and water resources have been provided at Samoa and this will give us a completely integrated kraft pulp and paperboard unit there similar to our Toledo, Ore., unit. With both water and rail facilities available there, it appears more advantageous to our overall planning than the Alaskan location."

Rothesay Paper Mill Starts This Summer

Construction of the Rothesay Paper Corp. newsprint mill in East Saint John, N. B., Canada, will start this summer, W. L. Forster, president of Sogemines, Ltd., said last week. The starting date of construction was not pinpointed, but Mr. Forster said delivery time of equipment is a determining factor.

Originally it was hoped that work would begin some time this month on the mill, expected to cost $32,000,000 for the first stage of a three-stage development program.

Sogemines, a holding company with interests in many industrial and mining firms, is a majority stockholder in Rothesay Paper Corp. It is a member of a group of five companies which are building the mill. Others are said to include Patino of Canada, Ltd., and Fraser Companies, Ltd.

Scott Turns to Chip Storage at Winslow

Just completed at Scott Paper Co.'s Winslow, Me., mill was a year long project involving a complete changeover from log storage to chip storage, for the winter months.

The $2.7 million project included installation of chip storage units and blowing systems, new pulpwood conveyors, a new barking drum, a splitter and a large chipper. Other phases of the program were the construction of a new bridge and conversion of a utilities boiler to burn bark.

With the new system, logs are sorted in the river adjacent to the mill, then funneled into the plant canal from which they are fed to drum barkers. The barked logs are next chipped, and by pneumatic conveyor the chips are transported to separate hardwood and softwood chip storage areas from which they are reclaimed as needed for making pulp. Logs received by truck are handled in a similar manner.

Ex-Im Bank Authorizes Loan for Greek Mill

The Export-Import Bank in mid-June authorized a $2.5 million credit for Xelotex Industries S. A., a private firm of Salonika, Greece. Loan will be used to finance purchase of U. S. equipment to build a fiberboard plant, near Salonika. Total cost of the plant will be $4.2 million.

Swedish Cellulose Buys Interest in Spanish Mill

A 50 per cent interest in the Spanish company, Papelera Navarra S. A., has been acquired by The Swedish Cellulose Co.

The Spanish company, in the province of Navarra, includes a paper mill with annual capacity of 24,000 tons of kraft liner and corrugated board and a box factory. The latter has recently been put into test operation; the former is scheduled to be completed early next year. Technical staff from the Swedish company will be placed at the Spanish plant's disposal. Papelera Navarra, now utilizing Spanish raw materials exclusively, may later also import Swedish pulp.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending June 10, 1961, at 92.0 per cent, compared with 89.4 per cent, revised, for the preceding week. The ratio was 99.1 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending June 10, 1961, at 94 per cent, compared with 84 per cent for the preceding week and 96 per cent for the corresponding week a year ago.

(Detailed Statistics on page 51)

AS MIAMI UNIVERSITY at Oxford, Ohio, graduated the first class of its industry-sponsored paper technology program, an honorary Doctor of Laws degree was conferred upon Howard E. Whitaker, Mead Corp. chairman, who has headed both the industry advisory committee for the program and the foundation through which industry now helps support it. Shown here on that occasion (left to right): John Swafford of Oxford and James R. Weber, Brookville, Ohio, two of the program's first seven graduates, who have been accepted by the Institute of Paper Chemistry at Appleton; Mr. Whitaker, who also is president of APPA, and C. Edwin Brandon, director of the Miami program.

Consolidated WP&P Shuts Down Experimental Plant at Wisconsin Rapids

Consolidated Water Power & Paper Co. has shut down its experimental spent sulphite liquor recovery plant at Wisconsin Rapids after a commercial-scale test run that lasted three years and cost more than $1 million.

"Whether the shutdown is temporary or permanent remains to be decided after engineering and cost analysis of figures already obtained," a statement by Stanton W. Mead, company president, pointed out.

The experimental recovery plant was built by Consolidated at an investment of $750,000 to test operating efficiency and actual costs of the Western Precipitation process for recovering and re-using chemicals and heat from sulphite liquor.

"In the next several months we expect to reach a sound decision on the recovery plant's proper place in our company's future stream improvement program," Mr. Mead said.

During the shutdown spent sulphite liquor from the Wisconsin Rapids pulp mill will be disposed of through a soil filtration lagoon there. Consolidated will continue uninterrupted operation of the Appleton utilization plant that since 1953 has evaporated spent sulphite liquor from the company's pulp mill on the Fox River for conversion into lignin liquor products or for burning as industrial fuel.

CONGRATULATING Andrew J. Rego (left) for having won third prize in the Bolton award contest for his essay on "Privileges of the Free Enterprise System," is L. C. Stilp, Kimberly-Clark Corp.s general purchasing agent. Mr. Rego, a graduate of Miami University, joined Kimberly-Clark as a purchasing understudy in 1960. The Bolton award program is under the auspices of PIMA.

Newsprint Made in South Africa for First Time

South African Pulp and Paper Industries, Ltd., is now producing newsprint at its Enstra Mill, Springs, near Johannesburg. This is the first commercial production of newsprint in South Africa.

The plant is producing 40,000 tons of newsprint a year with a potential of 70,000 tons if it is required. The mill is only supplying newsprint to the inland newspapers because it is still cheaper to freight newsprint from Canada by ship to South Africa than to rail it the 1,000 miles to Cape Town or Port Elizabeth.

The company is using South African grown pine exclusively. A £5,500,000 expansion is planned at Tugela in Zululand mainly in kraft grades and there are also plans for building new plants in Cape Town and in the Transvaal.

Ruberoid Moves To New Headquarters

The Ruberoid Co. opened its new general offices at 733 Third Avenue, New York City, on June 19. The move from the company's present headquarters at 500 Fifth Avenue was made during the weekend. In addition to the executive and administrative staffs of the parent company itself, the new offices will house personnel of Ruberoid's Mastic Tile and Funkhouser Mills divisions.

Sixth Industry Seminar Begins at IPC

Twenty-five men from 25 of the nation's pulp and paper companies arrived in Appleton on June 11 to begin The Institute of Paper Chemistry's Sixth Industry Seminar.

After a reception at the Conway Hotel Sunday night, introductory sessions of the three week seminar got under way June 12 with Neil McLeod, institute economist and seminar director, and Geo. D. Jernegan, Institute director of continuing education.

Subjects ranging from air pollution abatement, through packaging, process control, graphic arts, pulping, converting and paper evaluation will be presented at the seminar, utilizing 21 of the institute staff members in formal presentations, and others in a less formal capacity.

Each of the 25 seminar participants will discuss a "prior assignment," a topic chosen by the participant to present at the seminar.

PAPER PEOPLE

L. M. McGinnis

G. A. Holt

Rayonier Shifts Mill Executives

George A. Holt has resigned his position as resident manager of Rayonier's Grays Harbor division because of ill health, but will continue his association with the company as an active consultant in operations. It was announced that Lowell M. McGinnis will assume the position of resident manager, replacing Mr. Holt. Mr. McGinnis' office of assistant resident manager of the large Harbor operation will be filled by Joseph A. Krauth, who has been resident engineer. His post will be assumed by Lester R. Reekers, former assistant resident engineer.

A native of Tacoma, Wash., Mr. Holt has been with Rayonier and its predecessor company since 1927 when he joined the Rainier Pulp and Paper Co. as a chemist. He became manager at Hoquiam in 1951.

Mr. McGinnis, also a native Washingtonian, first saw service with Rayonier in 1940 as a chemist at the Shelton, Wash., operation. In 1953 he was transferred to the firm's new mill at Jesup, Ga., serving as assistant pulp mill superintendent, and two years later as that division's assistant resident manager. In 1959 he returned to Grays Harbor as second in command.

Mr. Krauth, the newly appointed assistant resident manager, came to Rayonier in 1951 as assistant resident engineer at Shelton. Later he filled the same post at the larger Grays Harbor division.

Mr. Reekers joined the company's Central Engineering in Hoquiam in 1955 as a civil engineer. In 1957 he was promoted to assistant to Mr. Krauth.

Powell River Executive Goes to Eddy

W. C. R. Jones, one of the MacMillan, Bloedel & Powell River, Ltd., executives who resigned recently, has been appointed vice president, manufacturing, of the E. B. Eddy Co.

Mr. Jones was a Powell River vice president, a position he held in the merged company.

At Eddy Co. he succeeds Brian W. Power, who resigned after 11 years, several of them as a director and vice president of the parent Eddy Paper Co.

Thibodeau, Wightman Join Gulf States at Demopolis

William C. Thibodeau and Charles E. Wightman have joined Gulf States Paper's Demopolis, Ala., plant—Mr. Thibodeau as product engineer and Mr. Wightman as product development engineer in process evaluation.

Mr. Thibodeau came with the company from Continental Can's Tonowanda, N. Y., plant, where he had been a coating specialist in research and development since 1955. From 1951 to 1955 he was color control foreman for the S. D. Warren Co., in Westbrook, Me. He had worked as coating technician with Nashua Corp., in Nashua, N. H., since 1948.

Mr. Wightman was a project engineer with International Paper Co. at Bastrop, La., before coming with Gulf States.

Rehling Advances at West Virginia

William T. Rehling has been named manager of commercial printing paper sales for West Virginia Pulp and Paper Co. He was promoted from assistant manager to fill a vacancy created by the recent death of Albert L. Armitage.

Canada Paper Companies Appoint Vice President

Appointment of David F. Kerr as vice president, sales, of the Ontario Paper Co. and the Quebec North Shore Paper Co. has been announced.

Associated with the pulp and paper industry for more than 15 years, Mr. Kerr, a native of Quebec City, joined Ontario Paper Co. and Quebec North Shore Paper Co. in May 1959 as sales manager.

D. F. Kerr

Head office and mill of Ontario Paper Co. are at Thorold. Head office of Quebec North Shore Paper Co. is at Montreal, with a mill at Baie Comeau. Newsprint and pulps are produced at both mills. Chemical by-products, including alcohol and vanillin, are manufactured at Thorold.

Mr. Kerr was sales representative from 1946 to 1948 for T. B. Little Papers, Ltd., Montreal, supplier of fine papers and specialties to printers. He then joined Riordon Sales Corp., a subsidiary of Canadian International Paper, and was a salesman in Montreal and the United States for six years. In 1954 he was transferred to New York as manager, dissolving paper sales.

G. W. Mead II

R. A. Schmid

Cons. WP&P Fills Quality Control Posts

Two new quality control positions in coated papers have been announced by Consolidated Water Power & Paper Co.

George W. Mead II has been appointed quality manager—publication grades, and Roman A. Schmid, quality manager—merchant grades. Both men will work under the direction of W. J. Foote, manager, book paper mills.

Mr. Mead has been product coordinator for enamel papers since 1959. A graduate of Yale University, he received an M.S. degree in paper chemistry from the Institute of Paper Chemistry in 1952. He joined Consolidated during the same year and served as production manager of the Wisconsin Rapids Division from 1956 to 1959.

Mr. Schmid began his employment with the company in 1950 in enamel paper sales service. He was appointed director of sales service in 1953. He is a graduate of the University of Wisconsin with a B.S. degree in chemical engineering.

Paper Corp. of U.S. Names N.E. Sales Manager

Sumner G. Stratton of Scituate, Mass., has been appointed by Paper Corp. of United States as manager —New England Sales Division. Mr. Stratton for several years had managed the New England sales for Champion Paper & Fibre Co., and has extensive paper mill and graphic arts experience.

St. Regis Forms Grocery & Specialty Bag Division

A new division, which consolidates all manufacturing and sales activities related to grocery and specialty paper bags, has been formed by International Paper Co.

The new Grocery and Specialty Bag Division will carry on all company activities in this field under the direction of Stephen Sturgis, who has been appointed general manager.

George Stuhr, Sr., sales manager of the Southern Kraft Paper Division, who has headed sales activities in the grocery bag field since 1949, will continue to be associated with the marketing activities of the new division.

SFI Adds to Growing Exec. Staff at Snowflake

Two superintendents and a personnel director have been added to the growing executive staff at Southwest Forest Industries' pulp and paper mill in Snowflake Mills, Ariz., according to Raymond E. Baker, executive vice president of the company.

M. F. Doyle, of Baie Comeau, P.Q., Canada, has joined Southwest as groundwood superintendent. He will supervise the production of groundwood pulp for the manufacturing of the 75 thousand tons of newsprint which will be produced annually. Mr. Doyle's entire business career, following his graduation from Sir George Williams University with the degree of B.S., has been spent in the pulp and paper field, starting with the Pulp and Paper Research Institute of Canada and more recently with the Quebec North Shore Paper Co. as groundwood and sulphite control engineer.

T. M. Lindley, until recently project engineer for Potlatch Forest Industries, Lewiston, Ida., will be kraft pulp mill superintendent at Snowflake Mills. Mr. Lindley's career dates back to 1936 when he joined the St. Regis Paper Co. in Tacoma, Wash., as a bleach plant operator and rose to assistant general superintendent. He later became pulp mill superintendent and plant manager at the San Joaquin Division of Fibreboard Paper Products Co.

Ralph A. Lawrence, a native of Wilmington, N. Y., joins the company as personnel director of the Snowflake Pulp and Paper Division. A graduate of Washington State University, where he majored in mechanical engineering, Mr. Lawrence was, for the past 20 years, personnel director of Fibreboard Paper Products Corp.'s operation at Port Angeles, Wash.

"Construction of the mill continues on schedule," Mr. Baker said. "Barring unforeseen circumstances, production of kraft paper and linerboard will begin in November of this year, with newsprint production following a month later."

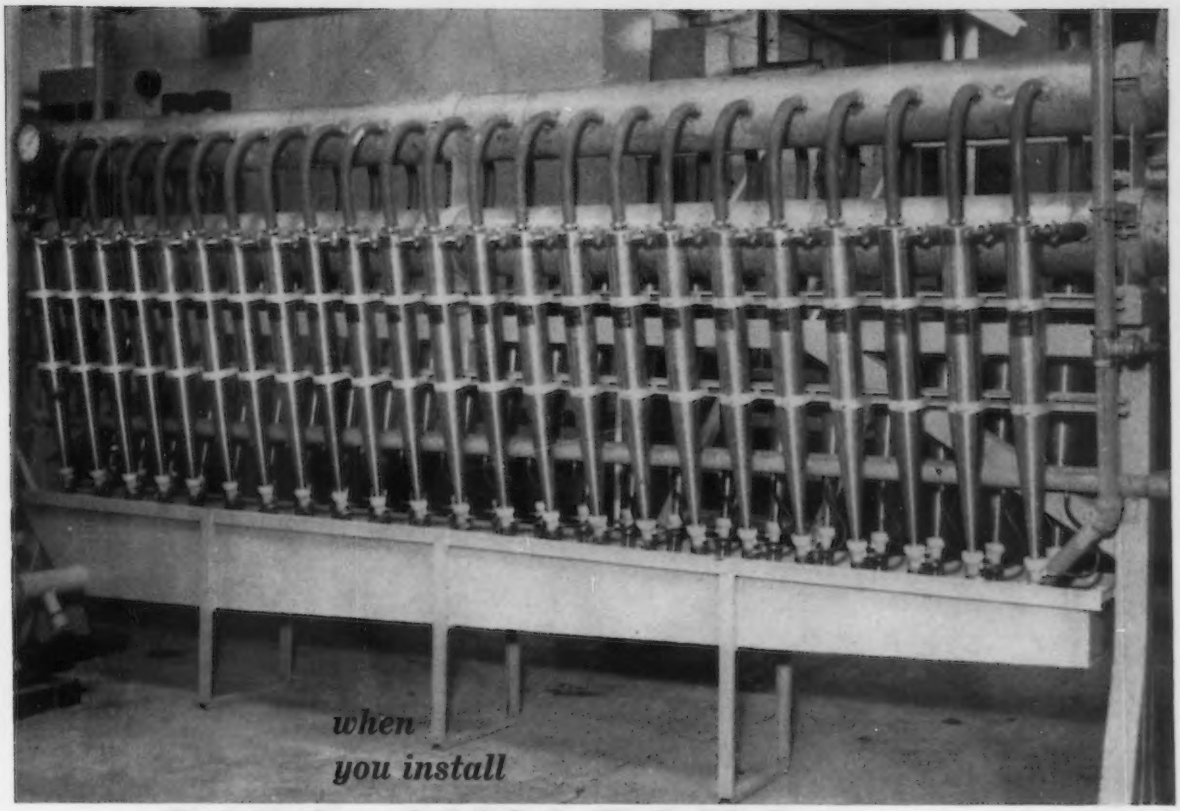
R. J. Van Nostrand

Van Nostrand Heads Merrimac Paper

Robert J. Van Nostrand has been named president of Merrimac Paper Co., Inc., one of the country's oldest manufacturers of kraft papers.

Formerly associated with Brown Co., Berlin, N. H., Dr. Van Nostrand has a broad administrative, marketing and technical background in the pulp and paper industry. Graduating with honors from Lawrence College in 1939, he received his A.M. and Ph.D. in pulp and paper technology at the Institute of Paper Chemistry, Appleton, Wis.

Joining Brown Co.'s Research Department in 1943 where he was involved in the development of specialty grades of kraft converting papers and associated pulps, Dr. Van Nostrand was transferred to the company's New York sales office in 1945. Moving on to Chicago in 1947, he was responsible for technical services and the sales of specialty pulps



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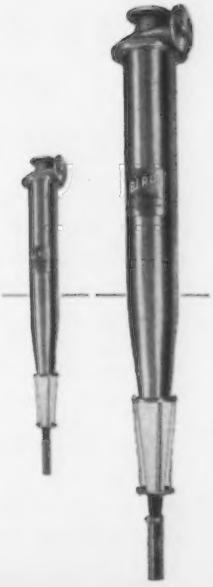

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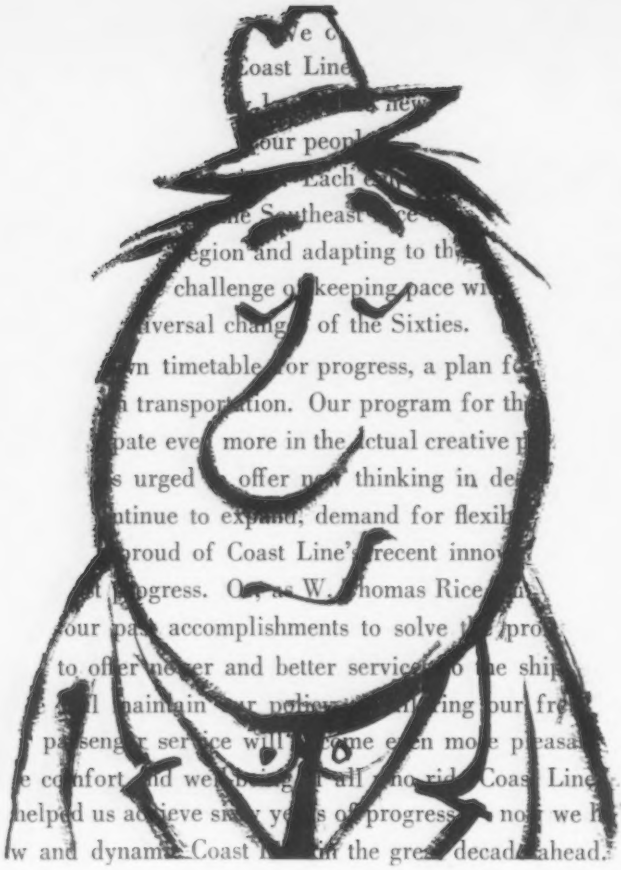

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and papers. In 1955 he was appointed the administrative assistant to the vice president in charge of sales at Brown's headquarters in Boston.

S. B. Shapiro

Paper and Twine Ass'n. Award Goes to Shapiro

Roy P. Whitney, dean of the Institute of Paper Chemistry has announced that the annual award of the Paper and Twine Association for 1961 has been given by the Institute faculty to Stephen B. Shapiro.

Mr. Shapiro is 22 years of age, single, and lives at Glens Falls, N. Y. He received his B.A. degree at Harvard University in 1960 and has just completed a year at the Institute of Paper Chemistry. He is doing summer work at the Riegel Paper Corp., Milford, N. J.

Corey Completes 25 Years With Fraser Companies

Alfred J. Corey, chief chemist, Fraser Companies, Ltd., and Fraser Paper, Ltd., was recently presented with an engraved gold watch in recognition of 25 years of service with the company. The presentation was made by Aubrey Crabtree, president and chairman of the board, who expressed warm appreciation on behalf of the directors and officers for Dr. Corey's long and loyal service.

IP Division Appoints Asst. Sales Manager

International Paper Co. announces appointment of J. B. Sickel and C. L. Goodwin as assistant sales managers of its Southern Kraft Board Division.

Mr. Sickel will supervise the division's sales activities in the Chicago office and Mr. Goodwin will be assistant sales manager in New York. Both will report to E. B. Pettiss, sales manager, in New York.

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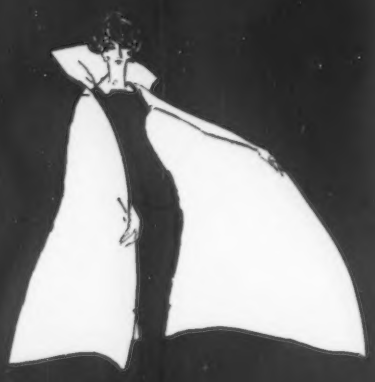

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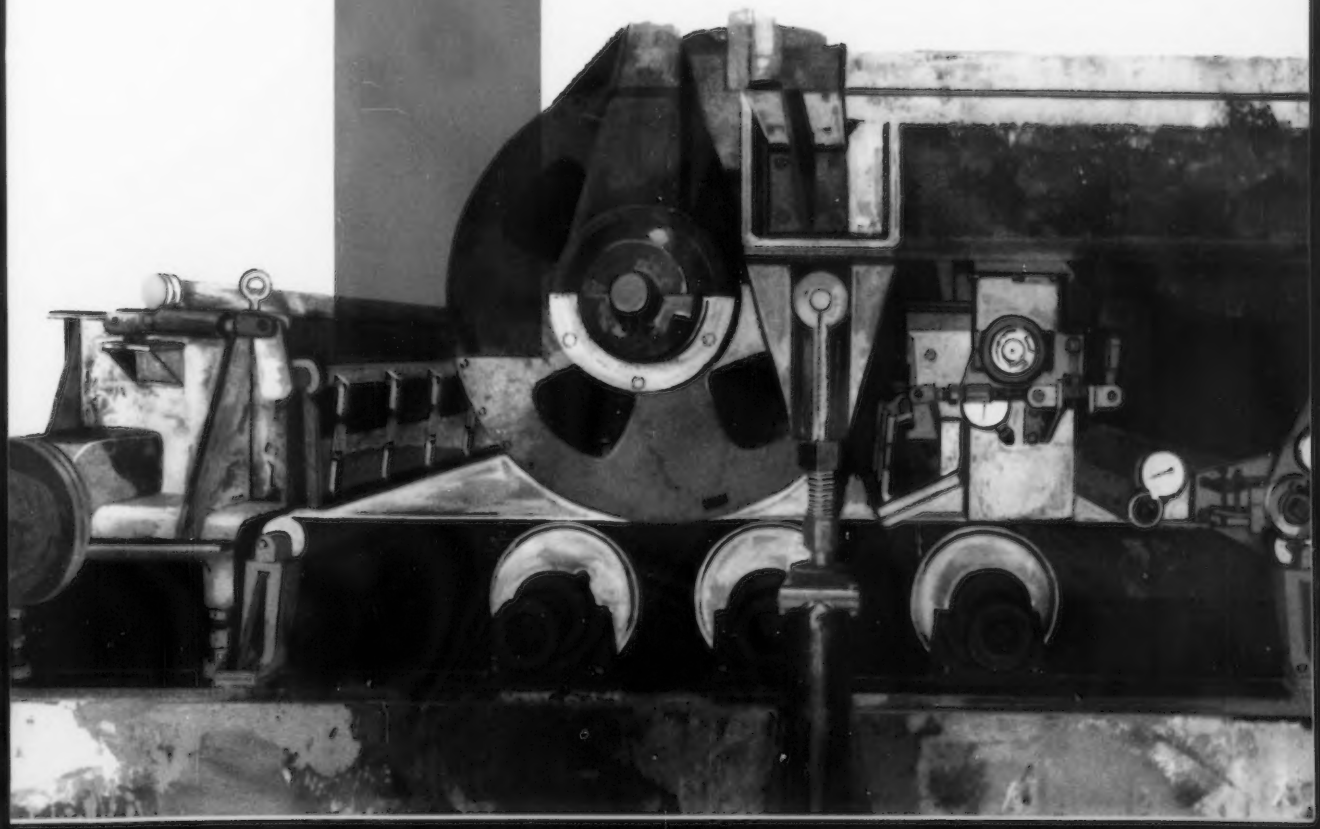

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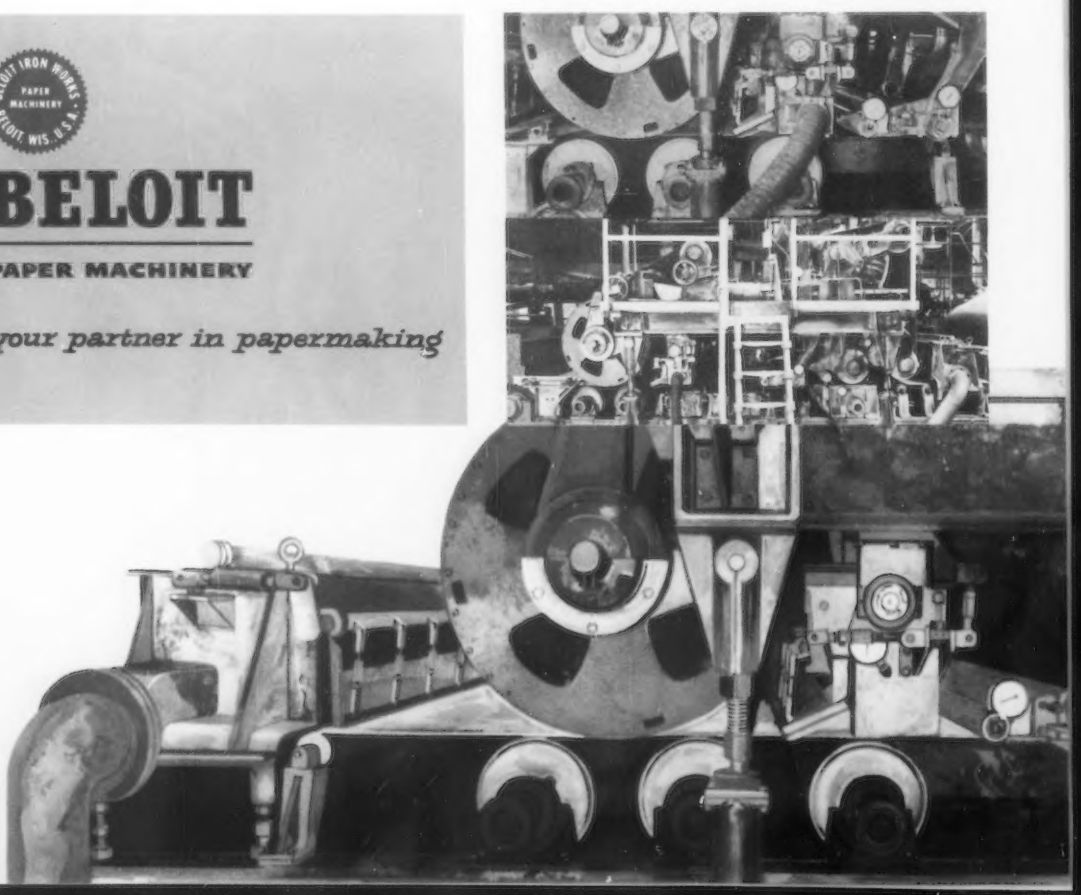
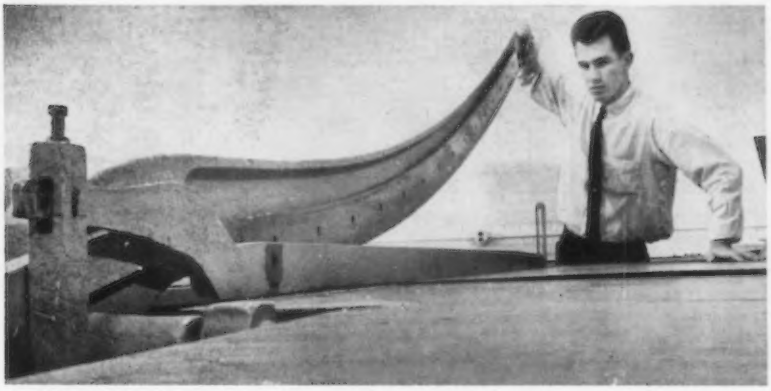


PJT NEWS OF CONVERTERS



KNIFE FORMS DESIGN—In the design engineering department of the new Forest Products Group Laboratory of Owens-Illinois in Toledo, Ohio, the idea comes first and then this huge 90-inch knife starts the formation of a new corrugated box design.

O-I Opens Packaging Research Laboratory

A new research and testing laboratory for improvement of corrugated and solid fiber shipping boxes and multiwall bags has been opened in Toledo, Ohio, by the Forest Products Group of Owens-Illinois Glass Co.

The new facility is located adjacent to O-I's Technical Center. This laboratory combines all research and development of paper products, mill and multiwall bag divisions.

The activities of the new unit are broken into five major laboratories: quality development, box and bag testing, design engineering, quality audit, and research and development.

Lord Baltimore Press Elects Executives

The Lord Baltimore Press has elected Leonard Dalsemer, formerly president, chairman of the board and William B. Banks, president, to succeed Mr. Dalsemer.

Mr. Dalsemer will continue his close identification with The Lord Baltimore Press devoting attention to broad policy and long-range planning. This action releases Mr. Dalsemer for special administrative assignments with the parent International Paper Co., of which he is already a vice president.

Prior to becoming president of Lord Baltimore is 1958, Mr. Dalsemer served successively as 1st vice president and executive vice president. He has been associated with the company for 33 years. In 1929 he established the company's sales offices in New York.

Mr. Banks has served as executive vice president of Lord Baltimore since 1959. A veteran of more than 30 years with the company since his graduation from The Johns Hopkins University in 1929, he has previously served in various key manufacturing and sales capacities.

Littlefield to Manage St. Regis Panelyte Div.

St. Regis Paper Co. has named George A. Littlefield general manager of the Panelyte Division. Mr. Littlefield will be responsible for both sales and manufacturing operations of the division.

This will permit C. R. Mahaney, vice president, to devote a larger measure of time to the administration and extension of the foreign licensee operations of the Panelyte Division. His activities in this area will be coordinated with the operations of St. Regis International Corp., of which Spencer P. Higgin is president. Mr. Higgin makes his headquarters in London, England.

Stone Container Promotes Blue and Meehan

Two Stone Container Corp. executives have been promoted at the company's North Chicago corrugated container plant.

Alvin Blue is new general manager of the facility. Formerly he served as both sales manager and assistant general manager at North Chicago and earlier was director of sales at the company's corrugated plant in Chicago.

James Meehan becomes sales manager at North Chicago, moving from the assistant sales manager position. For 12 years previously, he was a sales representative of the Chicago corrugated plant.

Walter H. McCallum has joined Stone as sales manager of national accounts for the paperbox division.

In the new position, Mr. McCallum will administer sales activities involving the firm's customers which maintain multi-plant operations requiring paperboard cartons.

Hinde & Dauch Moves Fallon to Buffalo

James S. Fallon has been appointed district sales manager of the Buffalo plant of Hinde & Dauch Division, West Virginia Pulp and Paper Co. He assumed his new duties on June 15.

Hinde & Dauch Division, a leading producer of corrugated boxes and interior packing materials, operates 16 plants, coast to coast.

Bemis Names Director, Product Development

R. P. Perry, manager of the Bemis Bro. Bag Co.'s Minneapolis plant and sales division, has been appointed to the newly created position of director of product development.

Mr. Perry's new assignment is a staff position in which he will report directly to the Bemis president. He will maintain headquarters in Minneapolis. Mr. Perry will be responsible for developing effective means of planning, evaluating, budgeting, coordinating and directing the company's research and development efforts.

ROSENLEW & CO. mills in Pori. Recovery boiler house can be seen in center background

Novel Ideas in Kraft Recovery Reduce Losses, Odors for Finnish Mill

Two of these—an electrostatic precipitator operating at nearly double normal temperatures, and a two-stage venturi scrubber—have afforded Rosenlew high chemical and heat recovery, plus a reduction in kraft mill odors.

Aimo E. Perttula,
Kraft Pulp Mill Manager,
W. Rosenlew & Co.,
Pori, Finland

During a complete modernization of the W. Rosenlew & Co. kraft pulp mill three years ago, several interesting novelties in European technics were adapted to the processes. The innovations applied to the black liquor recovery unit—as introduced in this article—expressly the hot electrostatic precipitator and the scrubbing of the flue gases, have resulted in both improved heat economy and recovery of chemicals from the effluents. At the same time, a great deal has been done to solve the air pollution problems of the kraft mill. The experience of more than three years shows an easy and smooth operation with the equipment concerned.

The recovery boiler is a Babcock & Wilcox-Tomlinson unit rated to burn 640,000 lbs. of black liquor (at 60 per cent dry solids) per day in producing 98,000 lbs. of super-heated steam per hour at 900 p.s.i and 750°F. The furnace is 50 feet high and is furnished with four lines of screen tubes. A Svenska-Flakt hot precipitator recovers salt cake from the flue gases. The economizer and the air pre-heater in the water circulation system are assembled from horizontal ribbed compound pipes and are furnished with a shot cleaning device. After the forced draft fans there is a Warkaus venturi scrubber.

The Author

In order to save space and, at the same time, to keep the flue gas ducts short, the boiler was turned around from its conventional position so that the water drums are located above the smelt tank as shown in Figure 1. The precipitator is located on the top of the boiler and is followed by the economizer. This arrangement permits the economizer to stand near the boiler and allows the connecting ducts to and from the precipitator to be vertical. Experience has shown that, in order to avoid fly-ash accumulation, the ducts should be mounted vertically, and preferably with an ash hopper in between, although in our installation the discharge duct from the precipitator is somewhat slanted.

This is another article specially prepared for PAPER TRADE JOURNAL as an outcome of the interest of a group of touring U. S. engineers in this development. Preparation of the article has been delayed pending modifications and improvements to the system.

The boiler is furnished with two ash hoppers. They are flushed by means of small cyclones at their bottoms into which is circulated heavy black liquor from the salt cake mixing tank. The turned position of the boiler has brought the drop pipes of this flush system, as well as the boiler water circulation drop pipes onto the operating floor, but there's a phrase telling us that all that is practical has to be accepted as being nice, too. Figure 2 illustrates the area there.

With the reversed position of the boiler some other advantages are gained. In the conventional assembly, the gas passage from the furnace up to the boiler section is on the front side above the smelt ports. Then, when soot-blowing the boiler, there often occurs the danger of blocking the smelt ports with stuff dropping from the upper boiler. That inconvenience is now completely avoided, and the bed on the furnace bottom always remains properly sloped.

Hot Precipitator

The idea of the so-called hot precipitator is based on the electrical properties of the dust layer on the collecting electrodes. The conventional precipitator has an operating range between 240°F. and 300-360°F. depending on the moisture content of the gases; i.e. the water content in the black liquor to the recovery unit. The resistance of the dust layer often has a maximum, at about 400°F., where the operating conditions of a precipitator are bad

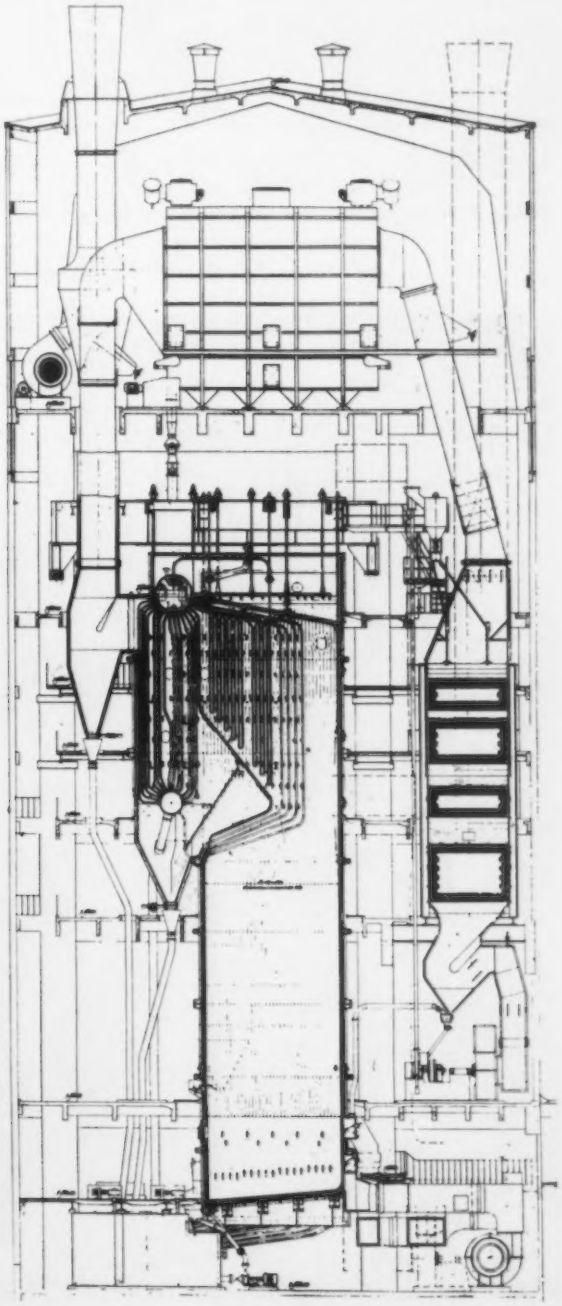
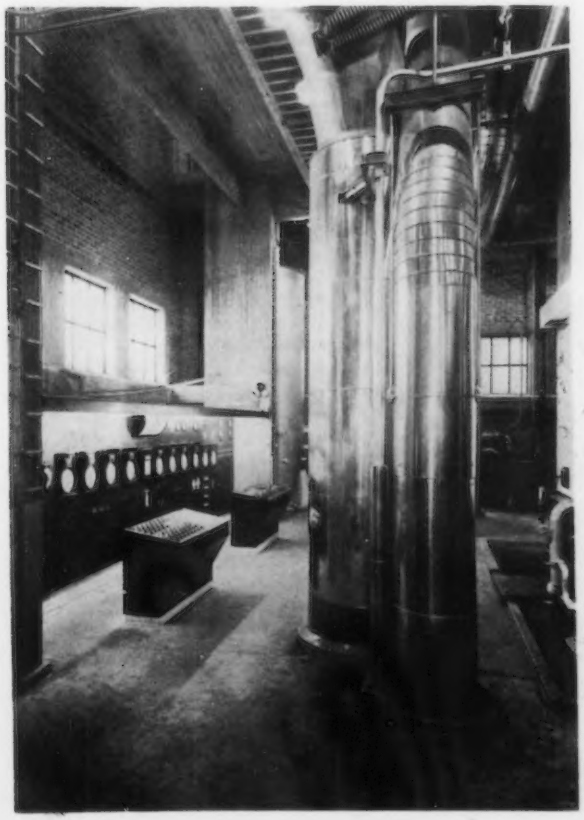


FIGURE 1—Side elevation of the boiler house, showing position of recovery unit and related equipment.

FIGURE 2—View of the control consoles and panel, plus the drop pipes for the ash flushing and water circulation systems.



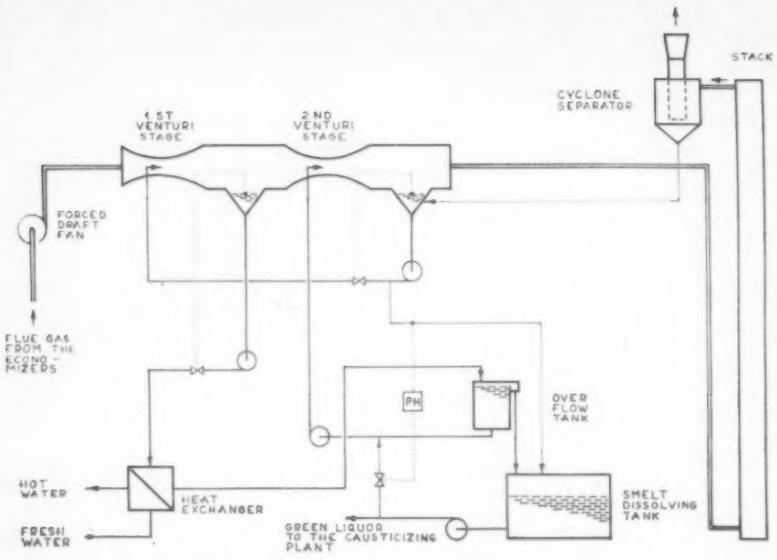
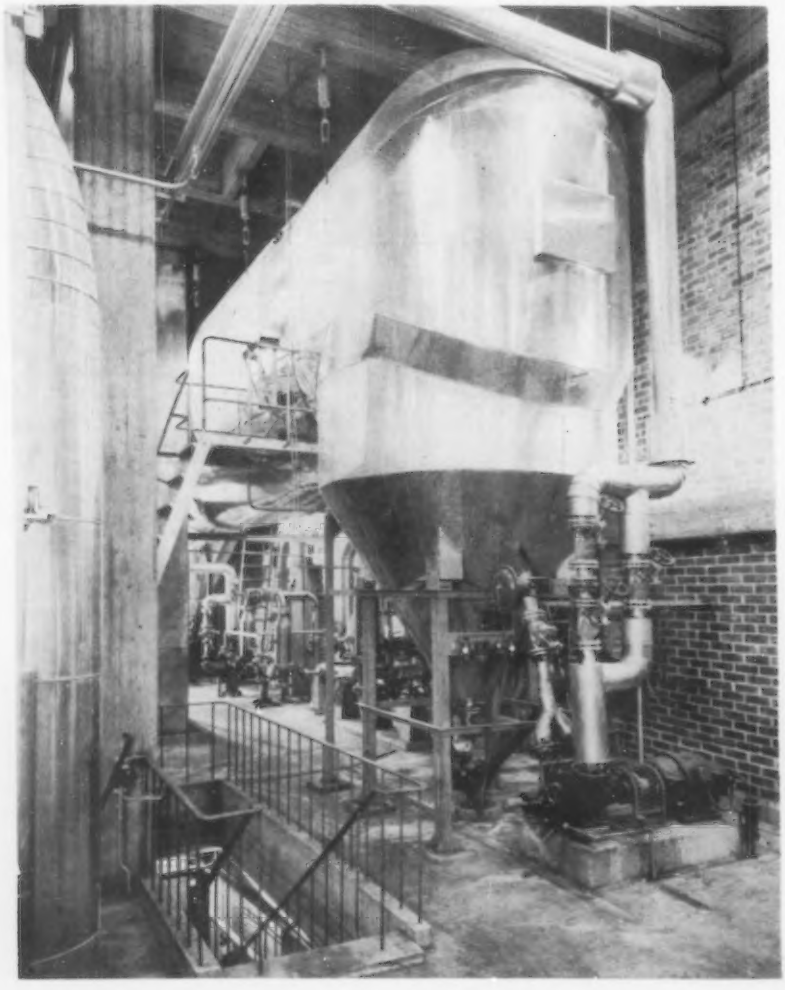


FIGURE 3—Flow sheet for the two-stage venturi flue gas scrubber system.

FIGURE 4:—View of the Warkaus two-stage venturi scrubber.



and "back corona" prevents a high efficiency. At still higher temperatures the resistance decreases and allows the hot precipitator to work smoothly and with high efficiency with reasonable precipitator sizes.

The operating range from say 600°F. up to 800°F. affords the opportunity to locate the precipitator between the ordinary boiler and the economizer and to use ribbed economizer pipes without any danger of blocking the economizer section. The common shot-blowing system is quite sufficient to keep the economizer clean. With our assembly, the economizer has been in operation now over three years without being washed once.

As the economizer surfaces remain rather clean most of the time, heat transmission is good. In other words, the hot precipitator system reduces the size of the economizer required.

The precipitator is rated to handle 2.6 million cubic feet of flue gas per hour and is divided into two parallel chambers, each with the outer dimensions 23 feet wide x 25 feet high x 32 feet long and a guaranteed efficiency of 96 $\pm$ 2 per cent at a temperature range of 750°F. Two transductor-controlled selenium rectifiers supply the high tension. Each chamber is furnished with two independent high voltage electrostatic field systems connected in series. Thus some minor troubles, e. g. a breakage of an electrode, etc. does not oblige shutting off the whole electric field. Then overhaul and repairs can be arranged at any convenient time, when the boiler load can be reduced so much that the other chamber can be disconnected, meanwhile the remaining one assuming the load.

There is a stack direct to the atmosphere furnished with an ejector forced draft fan which permits the precipitator to be by-passed. This is used when heating the boiler up or in emergencies.

The shutters in the gas ducts are of a valve type design in the shape of a "watch glass". They are absolutely tight and easy to operate.

The character of the hot precipitator ash differs somewhat from that of the cold precipitator in its electrical and mechanical properties. It can, for instance, form hard layers on the conveyors. Several difficulties were evidenced in the beginning, but after some redesign and modifications all those troubles have been eliminated. The ash properties also caused difficulties in keeping the emitting electrode systems clean but this problem has been eliminated too.

In order to limit heat losses, the insulation is properly dimensioned

(about 12-inch mineral wool) and the temperature drop is less than 11°F.

Experience has dictated that the maximum temperature limit to maintain a smooth operation with the hot precipitator unit is about 800°F. If for any reason, e. g. for higher steam pressure, there is an increase in the discharge temperature of the flue gas from the boiler, the solution is to divide the economizer into two sections. The precipitator is then located in between the two sections where the temperature range is more suitable.

Two-Stage Scrubber

A two-stage venturi scrubber, illustrated in Figures 3 and 4, follows the economizer. The unit is rated, with the above given nominal load of the boiler and with a flue gas temperature of 257°F., to heat up 88 short tons of clean water per hour from 46°F. to 125°F. The discharge temperature of the effluent gas is then about 140°F. Both the scrubber unit and the 170-foot high chimney stack are made of 316 type stainless steel.

Figure 3 shows the flow sheet as we have deemed it most advisable after many experiments. Circulation water first cooled in the heat exchanger is pumped from an overflow tank to the second venturi stage, collected in a hopper, and then pumped to the first-stage venturi. From the hopper in this stage the heated water is then pumped through the heat exchanger, cooled and returned to the overflow tank.

For pH control strong green liquor from the main smelt dissolving tank is added to the circulation water. Without any addition of alkali the acidity of the circulation water increases and heavy corrosion results. It is not advisable to use here any hydroxide-based substance such as weak liquor from the lime sludge washing or sodium hydroxide make-up. The carbon dioxide of the flue gas would carbonate it, which in turn would require extra make-up lime in the causticizing plant. The sodium carbonate in the green liquor does not absorb carbon dioxide but instead, as is more desirable, does absorb the different sulphur compounds present, i. e. sulphur dioxide and hydrogen sulphide. The double-stage spraying in the venturi throttling necks guarantees a thorough mixing and scrubbing of the gases. Thus, an effective sulphur recovery is attained, and the odors of the stack effluents are very efficiently reduced.

To avoid carry-over of the liquid to the atmosphere and subsequent deposition on the surroundings, a cyclone separator is installed on top of the chimney. Captured liquid is returned to the water circulating system.

The scrubber also recovers any residual salt cake which has passed through the electric precipitator. Thus, the total recovery of the chemicals is the most complete possible.

The surplus water from the overflow tank passes into the main smelt dissolving tank. This procedure necessitates high reduction of the salt cake in the smelt, which with the furnace at this plant averages 97 per cent or over, and an effective precipitator, otherwise the salt cake content in the cooking liquor becomes too high. Another possibility is to mix the overflow with the weak black liquor to the evaporating plant. However, in this case an accurate and careful pH control of the scrubber circulation water is required, as some ligneous substances in the black liquor will begin to precipitate at pH 6.8 which can cause trouble in the evaporators.

At our plant the recovery of the chemicals from the effluents, counted as salt cake, averages 38 lbs. of sulphur and 7.5 lbs of sodium per short ton of a.d. pulp. The high recovery of sulphur increases the sulphidity of the cooking liquor, but with the total soda losses corresponding to some 100 pounds salt cake per short ton of a.d. pulp sulphidity remains at the range of 30 per cent. If the soda losses get larger, the increase in sulphidity, if so desired, can be limited by adding sodium hydroxide or carbonate as partial make-up.

Plastics Conference Program

The Plastic-Paper Conference of TAPPI is to be held October 9-11, 1961 at the French Lick-Sheraton Hotel in French Lick, Ind.

R. W. Loheed, Chas T. Main, Inc., Boston, Mass., is general conference chairman.

The technical program is being prepared by T. A. Howells, the Institute of Paper Chemistry, Appleton, Wis. Among the technical papers to be presented are:

"Fundamentals of 'Flow' or 'Curtain' Coating"—W. Sandowski, Joyce Research & Development Corp., Valley Stream, Long Island, N. Y.

"Deinking of Plastics"—A. J. Felton, Shartle Div., The Black Clawson Co.

"Application And Properties Vinylidene Chloride Emulsion Polymers Applied To Paper"—R. F. Avery, W. R. Grace & Co., Cambridge, Mass.

"Blends of Ethylene/Vinyl Acetate Copolymers And Wax As Flexible Paper Coatings"—S. T. Lamar, R. H. Beeman and E. P. Czerwin, E. I. duPont de Nemours & Co., Inc.

"Alkaline-Curing Resins And Their Use In Paper"—G. I. Keim, Hercules Powder Co.

"Wet End Additions of Separated Corn Starch Fractions"—M. L. Cushing, A. E. Staley Manufacturing Co.

"Recovery Of Wet Strength Broke"—R. R. House, American Cyanamid Co.

"High Efficiency Wet Strength Production By Dialdehyde Starch In Closed White Water Systems"—G. E. Hamarstrand, B. T. Hofreiter and Mr. Kay, U. S. Department of Agriculture, Peoria, Ill.

"Polyacrylamide As A Stock Additive"—W. F. Linke, American Cyanamid Co.

"Package Usage"—E. M. Baltuff, Bemis Bag Co., Minneapolis, Minn.

"Paper-Plastic Uniforms"—G. Thomas, Quartermaster Research and Development Command, Natick, Mass.

"Beam Test For Wet Strength—Corrugated-Wax Impregnated"— D. Brown, Atlantic Refining Co., Philadelphia, Pa.

A panel discussion "The Growing Importance Of Man-Made Fibers To The Paper Industry" by representatives of paper making, fiber producers and binder producers is also being scheduled.

"This is virgin territory for paper cups but you would never guess . . ."

Materials Handling—V

Analyze Your Handling of Raw Materials to Stock Preparation

A step-by-step approach to solving the various problems of transporting raw materials, such as pulp and waste paper bales, to and into stock preparation equipment.

Henry H. Treuting,
Manager, Industrial Engineering,
Downingtown Paper Co.

Tremendous volumes of these bulky, lightweight materials are consumed annually in the paper board industry. The transportation and handling of these materials, representing a major expense to the industry, require considerable thought, study and analysis to find methods of minimizing these costs. The problems are many and various and will differ considerably between mills. It is the purpose of this article to explore several aspects of only a segment of this large problem.

Within the confines of this phase of raw material transport and handling exists a complexity of problems. For purposes of study and comment these problems have been classified under five major headings. Each is inter-related since the total problem cannot be solved without the proper dovetailing of its component parts. To achieve this result, separate treatment has been accorded the following major aspects of handling: volume of raw materials to be transported; handling at beaters and pulpers; considerations in handling due to layout of facilities; handling machine broke; selecting handling equipment.

The five sections deal with their subjects in broad terms, therefore, it must be remembered that representative situations are discussed only. Each mill will have its own unique situations which will require unique transport and handling techniques. This article can only describe commonly found problems and illustrate some of the methods that can be used to overcome them.

Since several chemicals are involved in the preparation of paper board furnishes, references have been made as to their effect upon the solution of handling problems in the sections that follow. Machine broke is handled under a separate section.

Volume of Raw Materials to be Transported

The all-important-first-step will be to define the total materials handling load. This is basic, since the layout of storage areas, the methods of handling and the selection of handling equipment must be predicated upon moving all of the papermaking materials to and into the pulpers or beaters on schedule and in the most efficient and least costly method possible. Not only will waste paper stocks, pulps and machine broke have to be considered, but also the various chemicals that will be consumed. These chemicals, while of significantly less tonnage, will affect the final solution of the total materials handling problem. Either special equipment for handling these materials must be procured, or the packaging and unitizing of these materials must be specified to the supplier in order to conform to the characteristics of the selected waste paper and pulp handling equipment.

The volume of materials to be transported can be determined by careful analysis of the production forecast. This forecast, sufficiently detailed to show the anticipated tonnage of each product in the total mix, will permit accurate estimating of the tons of each grade of waste paper, each type of pulp, and each kind of chemical that will be consumed during the forecasted period. If a multi-machine operation is under study, the forecast will have to be in terms of the total weight of each product in the anticipated mix for each of the paper machines involved. Analysis of these facts will indicate the parameters of the handling problem for each stock preparation operation.

Thus, a multi-machine mill such as the Downingtown Paper Co.'s, making many grades and weights of paper board, has a somewhat complex handling problem. Many grades of waste paper, several types of wood pulp and several kinds of chemicals are used in varying proportions for all the many grades and weights of board produced. Some grades and weights are common to all machines, while others are made on more than one machine and still others are made on just one machine. This of course, means that materials consumption for each mill must be figured separately.

Another factor to be considered, particularly in the manufacture of chip board, is the usage of similar grades of waste paper in both liner and filler furnishes. When these fur-

nishes are prepared in widely separated locations the handling volume for both locations must be estimated individually.

Units per Ton Important

Tonnage figures for every type of raw material will require further refining before the full scope of the handling problem becomes known. Each type of material, waste paper, pulp, chemical or broke is contained in a different package. Each type of package, be it bale, bundle or bag, will have a different set of dimensions and different weights. Therefore, the volume for each raw material must be divided by the average weight of the bale, bundle or bag in which it is contained. This mathematical procedure will supply the number of units to be handled for each raw material. It is an important step, for a bale of corrugated boxes will weigh approximately one-third to one-half that of a similar sized bale of tab cards. The handling per ton, to be reckoned with, can be as high as 3 to 1 and can have a serious affect upon the types and numbers of handling equipment to be employed when tonnages are significant.

Once the number of bales, bundles, and other containers is determined it will be necessary to estimate the numerical range of these units that must be transported on a daily or shift basis. The number of units to be handled will, of course, vary with the grades and weights of the product to be manufactured. Forecasted production in terms of average tons per shift will indicate the range, by types, of raw materials required per shift. It will then be possible to determine the number of bales, bundles and other containers that will have to be transported to each of the preparation sites per shift. These estimates will then help to determine the type of equipment that can be justified for handling the required volume in the quickest and most economical way. Time studies, standard data, time estimates and other data from material handling equipment suppliers will aid in the determination of the final specifications and amount of equipment best suited to handle the required volumes and types of materials.

PULP STORAGE — Arranged for lift or clamp truck pick-up.

The batch system of stock preparation permits greater flexibility of operation and is used when a greater variety of furnishes are pulped. Since it is most frequently found in the manufacture of higher grade boards, requiring specially formulated liners, under liners and back liners, the variety of raw materials to be handled is increased considerably.

Equipment and methods must be set up for handling waste paper bales of many grades, pulp bundles of several sizes and weights and bags and drums of chemicals. Selection of either special purpose equipment or multi-purpose equipment will be determined by the volume of each type of material to be transported.

Handling at Beaters and Pulpers

Next in line for analysis are the aspects of handling the many varieties of raw materials to the beaters and pulpers in the quantities required to sustain high-level productivity. Consideration must be given to the several factors that will affect the selection of handling methods and the types of equipment to be used. The methods of pulper and beater operation, the methods of charging, including the use of accessory-charging equipment and the amount of space available for charging operations will all require analysis and study.

Batch or Continuous Operation?

Taking these items in order, the first to be considered is the method of operation. Filler stocks, for instance, are for the most part pulped on a continuous cycle. This means that waste paper stocks such as mixed papers, kraft tissue, corrugated boxes, mill wrappers, box cuttings and broke must be supplied at the pulper or beater side in a continuous flow according to the ratio of each grade used in the formula being pulped. Further, it means that ample space must be provided around the pulper or beater to accommodate sufficient supplies of each grade to insure the desired level of productivity. If inadequate space is available, the emphasis must shift to the type of equipment to be used and provisions must be made for special delivery patterns and schedules to meet productivity requirements.

Charging Methods Differ

Since final handling of raw materials takes place at the beater or pulper side, consideration must be given to the various methods used in charging this equipment. Methods used in charging filler-pulping equipment will differ considerably from those used in charging liner-preparation equipment. Generally, pulpers are used in the preparation of filler stocks on a continuous basis.

This equipment, because it is deep, is always loaded from the floor above. The waste paper is pushed or dropped in with only cursory examination for foreign and unwanted materials. The area around these pulpers is usually generous because of the need to keep several varieties of waste paper at the edge of the pulper for fast and continuous feeding. Handling equipment, therefore, must be capable of rough-spotting of

UNLOADING box cuttings for immediate consumption at filler pulper.

loads, must be flexible enough to handle several weights and sizes of waste paper bales and occasional chemicals and must be rugged enough to push bales into position for charging. The actual charging may be done manually by the beaterman by pushing portions of the waste paper bale into the mouth of the pulper. In other instances the entire bale may be pushed in or dropped in by a lift truck.

Handling at beaters and pulpers used in liner-furnish preparation requires more precision than that used for filler preparation. The greater variety of waste papers, pulps and chemicals required for the three types of furnishes must be examined carefully before dumping into the beater or pulper. Some items such as hard-white envelope cuttings are screened to sift out dirt and to allow careful examination for possible contaminates such as wet strength and tar. The higher the grade of liners to be made, the more careful the examination for contaminates becomes. To facilitate inspection and culling of foreign materials, the placement of waste paper bales must be such to facilitate manual sorting and charging and to minimize rehandling and shuffling for the removal of accumulations of unwanted materials. The equipment required for this type of handling must be capable of close spotting, lifting on to sorting screens and removal of partially consumed bales or bundles and unwanted trash. Unless volume warrants specialized handling equipment, the transporting vehicle or vehicles must be capable of handling many different sizes and weights of waste paper bales as well as pulp bundles and containers of chemicals.

Recent Design

In many of the board mills of more recent design, dump hoppers and conveyors have come into common usage. Dump hoppers, such as those used at Downingtown, are receptacles that receive and weigh all elements of the liner furnish prior to charging the pulper. These hoppers are an integral part of a recording scale that permits weighing each of the raw materials as they are prepared for the pulper. Some mills such as the one at Downingtown have automated stock preparation which means that many sensitive instruments and controls are installed in this area. The transport to and the placement of raw materials at automated equipment is similar to that of handling directly to liner beaters or pulpers. However, one important exception exists in that greater care is required in placing loads to avoid unnecessarily heavy pounding of the floors by heavy loads that could jar sensitive instruments out of adjustment.

Charging of the dump hoppers is done manually for reasons of inspecting for and culling wet strength and tar impregnated papers as well as other contaminates.

Conveyors can be used when travel distances from storage to the preparation equipment is great or when storage areas are located on a level above or below the preparation floor. Conveyors must be selected that are easily loaded and unloaded and they must be able to carry sufficient volumes of raw materials in various forms such as bales, bundles, bags and other containers and they must be designed to work well with the methods and handling equipment selected for handling from storage to the conveyor. If the conveyor does not feed directly to the beater or pulper, it must provide for satisfactory handling methods from conveyor to the preparation equipment.

How Layout Affects Transportation

Considerable study and analysis will be required before solving the transportation problems that will be imposed by the layout of stock preparation equipment and raw materials storage areas. This is a broad study, for it will cover the location and accessibility of beaters and pulpers, the distances between storage areas and the pulping operations, the routes available for transport and such other items as multi-level handling. These items contain the greatest number of variables in the total handling problem. Since no two mills will have the same layout, the problem and its solution will be different for each. This section is limited to discussion of several of the important variables and covers some of the more practical possibilities for overcoming the more common problems.

The layout of beaters and pulpers is important from the standpoint of their accessibility by the various types of handling equipment under consideration. If areas around the beaters and pulpers are generous, the problem lends itself to several possible solutions. If, however, space

is at a premium, the selection becomes severely limited. It is possible that the sole solution, and here volume enters the picture, may be an expensive conveyor installation or in the other extreme, the lowly and inexpensive baggage truck may be the possible answer. Only a careful study of the conditions peculiar to a specific mill will provide the answer.

Storage and Transport

Raw-materials storage, depending upon the size of the mill, its production rates, its range of products and its proximity to suppliers, will take many forms. Some mills will have sufficient storage space at hand to the preparation areas to accommodate adequate supplies to keep the mill producing satisfactorily. When this fortunate circumstance occurs, the transport problem is minimized. Other mills, not possessing this advantage, may be forced to a complex-handling system to maintain a satisfactory flow of materials to the stock preparation equipment. In such instances each phase of the transport must be separated and studied. The methods and equipment for extracting materials from storage must be developed; the mode of transport from the storage place to the stock preparation building must be determined and finally the way in which the material is to be handled to the beater or pulper side must be established.

This complex handling cycle may entail the use of one of several types of cranes or lift trucks at the warehouse. It might well use both, depending upon special circumstances. The transport problem between the warehouse and the preparation building or buildings may require the use of an over-the-road truck, a railroad flat car or one of several types of conveyors in order to keep a steady stream of materials to the beater or pulper buildings. At the stock preparation buildings, the transport may be accomplished by lift truck, baggage truck, a conveyor or a combination of these types of handling equipment. There is no single solution suitable for all mills. Each mill will have its own unique problems and only through careful study and evaluation of volume and physical limitations of facilities will the one correct solution for efficient, least-cost handling be found.

Those mills, which are assured of daily deliveries of basic-filler waste paper stocks, have the advantage of short-circuiting a large portion of their warehousing operation by unloading directly from carriers to the pulping operation. This reduces handling significantly and should be employed whenever possible. It will be necessary, however, to warehouse sufficient quantities of these waste papers to insure adequate supplies if deliveries are delayed or if the materials come into short supply. Included in the handling methods for this type of operation should be a procedure for periodic turn-over of the warehoused quantities to prevent stock deterioration.

Long Distances Add to Cost

Long distances from warehousing or unloading areas to pulping equipment do not lend enchantment to handling problems. The greater the distance between these points, the more critical the handling problem becomes because of its increased costs. As these distances increase, it becomes more urgent to develop methods for multi-unit handling. This is the only way costs can be kept down provided the volume to be handled justifies the cost of such equipment and building layout permits its use. Such means as conveyors, industrial tractor trains and larger sized fork lift or clamp trucks provide for alternate solutions. One of which might well be the answer to the particular problem of a specific mill.

Storage areas, above or below the charging floor, present special problems for which three standard solutions are available. These are ramps, elevators and elevating conveyors. The most practical solution can be arrived at by careful study of three factors. The first being that of the quantities of materials to be handled; second, the physical characteristics of the building or buildings involved; and third, the size, shape and weight of the materials to be transported. If the volume to be handled is great, preference should be given to conveyors or ramps since they permit uninterrupted flow. Elevators, because they are virtually always available in a multi-storied building, provide a suitable solution when volume is low.

The choice between ramps and conveyors can be made after comparing costs of installation, physical limitations of the buildings involved and the handling methods to be used on the storage and preparation floors. Ramps requiring steep grades are to be avoided, particularly if the grade exceeds ten per cent. The choice then should be a conveyor.

Finally, a survey should be made of the routes that the various raw materials will travel from storage to stock preparation. Tortuous routes are not easily or inexpensively conveyorized and, therefore,, conveyorization should be avoided when possible.

If the routes to be used provide broad aisles (10 feet or more wide) and have doorways with good clearances and headroom (both dimensions about eight feet), they will provide a good thoroughfare for fork truck operations. It must be remembered, however, that such trucks will not work well if there are ramps along this route with slopes exceeding a ten per cent grade.

Machine Broke Means Special Problems

The problems of machine broke require separate consideration for two pertinent reasons. The first, because it is generated within the board mill as by-product or waste from board machine operation. The second, because it is handled in loose form and is rarely maintained in storage for any length of time.

Some mills have installed a small pulper near the machine so that broke can be disposed of immediately. The pulped broke is then returned through the system as filler furnish. Such installations minimize broke handling and when carefully supervised are a valuable asset. A word of caution, however, such convenience in disposing of broke may lead to wasteful practices on the part of the machine crew. It is very difficult to appraise the efficiency with which changes are made on slitters, knives and rewinders when the evidence is too quickly destroyed.

Mills which do not have machine side broke pulpers have a handling problem to solve. The desired goal is, of course, a prompt conversion of broke to furnish. To accomplish this, lightweight four-wheeled carts with stake sides are commonly placed at hand to the sheet table. Trim and small sheet broke can be dumped into the cart. When filled, the cart is moved aside and an empty is put in its place. For large sheet broke or wet broke, flat bed trucks are used with or without corner poles. Both types of trucks should be equipped with a coupling device for towing by a lift truck or industrial tractor to the filler pulper area. Physical characteristics of the building may pro-

AUTOMATED liner stock preparation.

hibit towing and when such is the case, the truck size and weight must be kept within the limits of a man's capacity to handle the load.

An area should be provided near the filler pulpers for temporary storage of broke carts. A small hoist fastened to the overhead structure slightly less than a cart's length from the pulper edge can be used to tip the cart toward the pulper thus facilitating the unloading of the cart.

Excessive broke accumulation, beyond the capacity of the mill to absorb within a few hours will have to be stored. If broke carts are limited in number, broke can be strapped to skids or pallets and held in temporary storage until it can be consumed by the pulper.

Considerations in Selecting Handling Equipment

Preceding sections outline many of the variables that are inherent in the handling of waste paper, pulp, chemicals and broke. All of these variables will influence the decisions that lead to the final selection of handling equipment. Chances are that the final selection will include more than one type of equipment. This, of course, depends upon purely local conditions and, again, it must be pointed out that each mill will have its own particular handling problems. There is no preset handling equipment package that will prove to be the least-costly handling method for transporting all raw materials for all mills. Some of the more common types are discussed below.

Fork-lift Truck

The most flexible and probably most universally used piece of equipment is the tried, true and well proven fork-lift truck. Over the years this type of truck has come the closest to being the complete answer, but like all mechanical things it has its limitations, some of which will be discussed in succeeding paragraphs. This truck can be equipped in a variety of ways to suit particular requirements. A 4,000-pound truck with a 24-inch load center and adjustable forks will answer most purposes. Trucks with these specifications will handle all the waste paper bales from box cuttings through manila tab cards as well as bundles of pulp and skids or pallet loads of chemicals. Users must be careful to specify the amount of lift required for unstacking bales from storage. Mast heights must be specified to insure clearance through doorways and into over-the-road trailers and railroad box cars if raw materials are to be transported from these sources directly to the preparation equipment.

These trucks can be obtained with several power units and automatic or standard transmission. Gasoline or L.P. engines are the most popular from the standpoint of initial cost and greater flexibility, particularly where ramps or inclines are involved. Battery powered trucks are rugged and are less costly maintenancewise, but require greater initial investment. They operate well over level surfaces but when steep inclines or ramps must be negotiated, battery drain becomes severe. The diesel-electrics are still too new for comment at this writing. Automatic transmissions are now available in all of the popular makes of gasoline trucks and they offer considerable advantages in freedom from frequent clutch replacement and do much in prolonging tire life.

Rotating Clamp Useful

Special consideration should be given to the use of lift trucks equipped with rotating clamps. The clamping device assures positive hold on bales and bundles of most grades of materials and are, therefore, particularly useful in unloading tightly packed trailers and boxcars and in removing bales from multiple tiered storage areas. The ability to clamp tightly to the bale obviates slipping such as occurs with forks when the forks slip from under a stubborn load. The rotating feature provides flexibility in the manner in which a bale or bundle can be picked-up since the bale can be approached with the clamps positioned vertically, horizontally or, if need be, at an angle, whichever is required to obtain a positive hold on the load.

During transit the bale can be rotated to the proper position for spotting at the beater or pulper side. The actual spotting is more precise and the loads are put down more gently

than with forks. Since the bale is positively controlled and already in position for charging, the bale does not require tipping, pushing or other mauling generally required when it is delivered by fork truck. This results in less jarring of the floor and, therefore, less chance for sensitive automation instruments to be knocked out of adjustment. In addition, the truck and its tires receive less abuse. The clamp attachment works well on most waste paper bales and pulp bundles. Difficulty, however, is experienced in handling the very large and heavy manila tab card bales or when too many pulp bales are handled at one time. It can handle as many as two bales at a time of lighter weight waste papers such as corrugated boxes and corrugated clippings.

Specifications for truck capacity, load centers, lifting height and mast height are the same as for the standard type of fork-lift truck.

Special Purpose Equipment

Conveyors, cranes and elevators come under the classification of special purpose handling equipment designed primarily to overcome structural obstacles and long distances between storage areas and points of consumption. Each of these items will require engineering before installation since each case will differ due to considerations of volumes to be handled and the layout and structural limitations of the mill buildings. Only general comments can be submitted as points for consideration in the selection of the most desirable types.

Conveyors are frequently used when a continuous flow of waste paper and pulp must be transported over long distances. Chemicals, too, can be transported on the same conveyor if the packaging of the chemical is designed for such handling. Elevating conveyors are a proven means of transporting a continuous flow of materials from one level to another. Cranes of several types are used when outside storage or unusually high tiering is employed. Boom cranes, "A" cranes and bridge cranes all have specific application and when properly applied do a very satisfactory job. As in the case of conveyors, cranes must have auxiliary equipment.

Conveyors must be loaded, usually by lift truck or a crane, and will require special handling at the pulper or beater side. This, too, is frequently done by a lift truck. Cranes must discharge to a conveyor, a large truck or car, or position the bale for lift truck pick-up. Such equipment is justified only when large volumes require handling since capital investment is substantial.

LOADING hard white envelope cuttings and chemicals in liner dump hopper.

Elevators provide a practical solution for low volume handling between floors. They are usually multi-purpose in that other materials and equipment are also transported between levels on this lift. When multi-purpose use is required and only limited quantities of paper-making materials are to be transported, this equipment provides a satisfactory solution. It is difficult to maintain continuous flows with elevators unless they are specified for raw material usage only.

Baggage trucks, battery powered walk-along pallet and platform trucks and hand trucks make excellent supporting equipment, particularly at the beater or pulper sides. They are most efficient for short hauls where maneuverability and flexibility are required. All mills have found one or more of these handy pieces of equipment indispensable for numerous petty handling chores. The powered transporters and hand trucks do a very efficient job of handling pallets and skids of materials particularly the chemicals while the baggage truck is useful for repositioning waste paper bales.

Careful Study Needed

This section has covered a broad range of equipment types. Special and unique handling equipment is in use but because of their peculiar application they have not been included. Only careful study and consideration of all the facets of raw material handling to the stock preparation equipment will indicate the practicality of unique installations. When the handling problems are outlined and well understood for a specific mill it is advisable to discuss these problems with qualified representatives from several companies dealing in materials handling equipment. They have a wonderful fund of information and will be only too glad to assist in the selection of the right piece of equipment for the right job. They will also provide valuable engineering assistance when such is required.

Recent Developments In Fibrids and Textryls

Use of synthetic fibers and fibrids (fibrous particles of the same synthetic) to produce special papers on a conventional fourdrinier is making progress. At least six companies are producing these synthetic fiber papers, called textryls.

George F. Corse, Jr.,
New Products Division,
Textile Fibers Department,
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Wilmington, Del.

Du Pont's textile fibers department has been working for more than five years to develop new synthetic fiber paper products. Early research work showed that the good physical and chemical properties of nylon, "Dacron," and "Orlon" could be imparted to papers made from these fibers that were bonded with resins. Resin-bonded synthetic fiber papers were found to excel in tear strength, fold endurance, burst strength, dimensional stability, high temperature resistance, and chemical resistance. It also was recognized that synthetic fibers were expensive by papermaking standards and, therefore, would be of value only in specialty papers where different or better properties were needed.

It also was learned, however, that final synthetic paper properties depended upon the binder's properties. In many cases, the resin and fiber binders available five years ago were the weakest part of the sheet. So, it became apparent that there was a need for binders chemically similar as well as compatible with nylon, "Dacron" polyester fiber, and "Orlon" acrylic fiber. It also seemed to be advantageous if binders could be mixed in the paper furnish and handled on the paper machine as pulp is normally handled. In short, a man-made pulp was needed for bonding man-made fibers.

How They Were Developed

During a search for better binders for textile fibers, a new binder system was invented which has turned out to be the key to successful paper machine production of synthetic fiber papers. A chemist, working with polymers but involved in another research project, made some sheets that consisted entirely of fibrous particles. This proved to be the key to the necessary binder system. The fibrous binders are blended with synthetic fibers. By heating the sheet, the binder melts and fuses the fibers together. Melting temperature of the new binder is from 50 to 100° F. below the melting temperature of the fibers.

Several years of research were needed to develop methods for producing the new binder. Early samples were made in quarter-pound quantities. These samples were used to make papers for laboratory testing and characterization. When technology had advanced sufficiently, several paper companies aided in evaluating the binder system. Much credit is due these companies which have helped solve product and process problems.

Last October at a TAPPI conference in Syracuse, N. Y., Dr. R. A. A. Hentschel, of Du Pont, announced that the company had developed the new binder system. (See PAPER TRADE JOURNAL, November 14, 1960, for a detailed report.) Three new binders are now available: one for bonding nylon, one for "Dacron" polyester fiber, and one for "Orlon" acrylic fiber. These binders have been given the generic names of fibrids. Fibrids 101 are for bonding nylon, fibrids 201 for "Dacron," and fibrids 301 for "Orlon." Since a wide range of products can be made from synthetic fibers and fibrids, a new generic term has been adopted for these products. This name is "textryl."

How They Are Used

Nylon, "Dacron," and "Orlon" papermakers' fibers, as supplied by Du Pont, are ready for use in the paper furnish as received. Fibers are supplied in cut lengths from one-eighth inch to one-half inch. One-quarter inch fiber is the most widely used because it is easily dispersed in water and offers a good balance of properties. Fiber sizes vary from 1.5 to 15 denier per filament.

These fibers are chemically the same as synthetic fibers used in textiles, but are processed for handling on papermaking equipment. Each fiber type has its own specific characteristic which distinguishes it from others. Under the microscope, fibers are smooth surfaced and uniform in size and thickness.

Under the microscope, fibrids look like well-beaten wood pulp. They are filmy or fibrous particles that are prepared from thermoplastic polymers similar in chemical composition to specific synthetic fibers. Fibrids are supplied today in a wet cake of about 20 per cent solids. Before use, they are dispersed in water and refined.

Depending upon the desired textryl, the manufacturer may add from 10 per cent to 40 per cent fibrids to the synthetic fibers. Fibrids also can be used to bond other fibers including wood pulp, cotton, rayon, and blends of synthetic and cellulosic fibers.

Although there are only three fibrids commercially available, fibrids can be made from many polymers. Fibrids are excellent adhesives. There are very few surfaces to which

First textryl to reach the market was "Dextex" from C. H. Dexter & Sons. It is used as interlinings in men's suit coats.

Excellent drape of Kimberly-Stevens textryl is examined by A. D. Gusman (left) sales manager and H. T. Rindall, president.

George Corse (author of this article) and B. F. Conner of Dexter worked closely on "Dextex."

they will not stick when properly applied and heat fused. Ability to stick provides both adequate strength of the wet sheet and good bonding of the synthetic fibers in the final sheet. Many other fibers and raw materials that can be run on the paper machine can be bonded and strengthened with fibrids.

Forming and Fusing the Sheet

Standard papermaking equipment can be used to manufacture textryls. In some cases, modification to the wet end of the machine is necessary to get the desirable textryl sheet formation. Fourdrinier machines have proved to be very satisfactory for processing textryls. The limited work with cylinder machines and Rotoformers indicates these machines would also handle the synthetic fiber and fibric blends satisfactorily.

Several different types of heat fusing equipment may be used to melt and fuse the fibrid binders. These vary the properties of the textryl. Application of both heat and pressure on the textryl will provide tough, crisp paper-like products. This is done with a hot calender. More textile-like products with higher loft are developed when heat alone is applied to the textryl. About 400 degrees Fahrenheit is necessary to melt the fibrids.

Du Pont papermakers' fibers are available in quantity and can be used very readily by the paper industry. After many years, a new binder system has been developed for bonding these fibers.

Future Growth

Can these fibers and fibrids be used by the paper industry to develop new products, improve existing products, and/or diversify their line of products? Is there a need for textryls or for materials made with nylon, "Dacron" polyester fiber, and "Orlon" acrylic fiber and fibrids? We believe the answer is yes. The companies we have been working with also indicate that excellent business opportunities exist for textryls.

Two companies already have introduced textryls that are replacing woven fabrics as apparel interlinings. Textryls also are being developed that will compete with synthetic woven and non-woven fabrics where chemical properties will be available at a cost advantage.

Paper companies interested in textryls should recognize that it is necessary to do product design work, market evaluation, and end-use testing of textryls. New textryl products must also be marketed carefully and over a long period of time. Routine marketing will not be enough. The concept of making a product on a paper machine to replace a woven fabric is not new, but it is still not readily accepted. Therefore, market development is needed to sell the product on its own merits.

Electrical Market

In the electrical industry,* one goal calls for insulating materials with low moisture absorption that will perform at 130 degrees centigrade for as long as 20 years. Also

*Editor's Note—Recently the Eaton-Dikeman Co. has begun commercial production of Dacron textryls for use in motors and transformers. Riegel Paper Corp. and Rogers Corp. are also offering textryls as electrical insulation materials.

desired is thinner, stronger insulating material so that smaller equipment with high output can be made. Strong textryls of "Dacron" polyester fiber can be produced from 1.5 to 2 mils in thickness.

Laboratory work also has demonstrated that varnished textryls of "Dacron" have a power factor of only six per cent as compared to varnished cotton with a high power factor of 30 per cent after 24 hours of operation at 25 degrees centigrade and 96 per cent relative humidity.

Filtration Papers

Liquid and gas filtration is a complex business. Many papers, fabrics, screens, and other materials are used as filter media. The chemical properties of "Dacron" polyester fiber. "Orlon" acrylic fiber, and nylon in textryls are the same chemical properties found in woven filter fabrics of "Dacron" polyester fiber, "Orlon" acrylic fiber, and nylon. It has been estimated that textryls of "Dacron" could be made for less cost than synthetic woven fabrics because more fiber is needed in weaving to obtain satisfactory density for filtration. Textryls will be useful in chemical filtration.

Apparel Market

The apparel market, where both woven and non-woven fabrics are used as components of garments, is another good market for textryls. Here, there is need for better wash and wear performance and lower cost. Low moisture absorption makes "Dacron" a leading contender in this field. There also is belief that lightweight disposable garments will someday find acceptance. Lightweight textryls with high strength should be useful for this market. This is one area where there is a need for research work to learn how to soften, print, and dye textryls that will be suitable for garments.

Use for Plastic Overlay

In the plastics field, there is a continuing search for overlay papers which will improve the clarity and life of the final product. Existing paper, woven, and non-woven products are still not entirely satisfactory. Early tests in our laboratory indicate that textryls of "Orlon" will not only improve clarity of the low pressure laminate, but also will reduce degradation due to moisture and sunlight.

They are expected to find use in reinforced plastic laminations for countertops and wall panels where clarity and toughness are required; in decorative and display signs, and restraining veils in glass-reinforced plastic panels where outdoor durability is paramount.

Many Other Possible Uses

There are many end uses where blends of wood pulp, rayon, or cotton and synthetic fibers bonded with fibrids would be of interest. These are products where cellulosic papers as well as woven fabrics are now used. Blended textryls would be of value because of better dimensional stability and strength than the cellulosic products. These uses may include industrial and business machine tapes, high wet strength papers for maps and signs, currency paper, duplicating and recording paper, and backing for coated products.

Textryls also can be molded and embossed. They can be laminated to films, metal foils, and other papers with no additional adhesive needed. Fibrids are thermoplastic and will remelt when heated and will adhere to many surfaces. We have combined textryls of "Dacron" polyester fiber with kraft paper, with "Mylar" polyester film, and other films, and with aluminum foil by passing the two products through the hot calender at the same time.

Materials like asbestos, mica, and glass also have been processed and strengthened by running them on the machine with 10 to 50 per cent fibrids.

From a talk before the Absorbent Division, Specialty Paper and Board Affiliates, Park Lane Hotel, New York City, March 29, 1961.

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What is Wrong With the Paper Industry—Particularly Merchants?

Charles E. Canfield,
President,
Canfield Paper Co.

Some of the things that confuse me and I suspect you, too, are these:

1. Why do mills confuse merchandising and production?
2. Why are we all scared stiff of over-capacity when it's the one thing we have wanted for some years?
3. Why so much price cutting when everybody's costs are higher?
4. Why is direct selling such a bugaboo?
5. What do we do with all these new machines and with start-up tonnage?
6. Are profits wholly dependent on volume?
7. Where do merchants fit with mills and where do mills fit with merchants—merchant-mill relationships no less!
8. What's all this merger and acquisition business about, and who's going to own whom tomorrow and why?

Charles E. Canfield serves as treasurer of The National Paper Trade Ass'n., Inc. Mr. Canfield entered the paper business in 1923, with the Canfield Paper Co., New York City and has served as its president since 1946.

Merchant and Mill Partnership

There is a definite tendency toward partnership between some mills and some merchants. We have loosely characterized it by the terms merchant-mills and mill distributors. This contract of partnership is also loose and poorly defined, and there are many inequities that should be, and probably will be, ironed out. Originally, and until quite recently, a merchant and a mill were far from being partners. A merchant bought paper from a mill, any mill, who would make for him what he wanted at the cheapest price. He then resold it at the highest price he could get for it. There were merchant lines — "Private Brands" so called, but who made them depended on what month it was.

The merchant's motto was, "Let the buyer beware" and "the hell with the manufacturer." He did quite a bit of gambling and sometimes he made a pot-full of money and other times he lost, but the government let him keep what he made so over the years he prospered.

Then came standard mill brands, mark-ups, and, taxes on profits. Most merchants decided that there were economies and selling advantages in standard mill lines and became known as distributors, at least for most of their business. Most mills decided that selling a high percentage of their output as standard lines through established merchant distributors was the most profitable and economical method of distribution.

A few mills and a few merchants disagreed. These few mills, either because of a different policy or because of inability to sell good distributors, decided to sell their products direct. A few merchants, either because of policy or inability to get good mill lines, decided to buy cheap and sell cheap.

Paper People Scare Easily

As long as the production and the demand for paper were closely in balance, these few defectors did not disturb the market. When paper appeared to be scarce there were no defectors in evidence at all. But, when paper mills got over enthusiastic about the future demand, and spent fortunes to acquire more machine time before it was needed, these mills and merchants really upset the equilibrium.

Now paper people are all nice people, and smart, too, but they scare easily and they have an exalted opinion of the importance of the price of paper and a real inferiority complex about the relative value of paper in the market place. They panic easily; so when a few people whisper a few key words like new machines, over-capacity, direct selling, recession, they immediately start running around in circles, baying at the moon and snapping at people's heels. Sometimes, they even bite the heels, which only proves that they have their ear to the ground, their sights awfully low and that somebody is way ahead of them.

Paper people are panicky now, and only because they forget, or were never taught, the one great axiom which could be the simple answer to most of our problems which is, "YOU CAN'T GET ALL THE BUSINESS." This axiom should be our motto. It ought to be pasted in every merchant and mill salesman's hat and displayed on every executive's

"Now paper people are all nice people, and smart, too, but they scare easily and they have an exalted opinion of the importance of the price of paper and a real inferiority complex about the relative value of paper in the market place."

desk with two of them on the sales manager's. It should be taught in every kindergarten in the land and given as a refresher course in college. If we stop to think, we know it is so. We can't get all the business and we wouldn't know what to do with it if we had it—so why spoil things for the other fellow. If we could only believe and act accordingly, most of our troubles would disappear.

Let's just try applying this motto, "You Can't Get All The Business," to some of these current problems and see if it doesn't make sense. Last year there was supposed to be some kind of a recession. Business was poor; yet we as an industry manufactured, sold, and distributed fifteen million more tons of paper and paperboard than we did in the boom years of 1946 or 1947 when we had profits coming out of our ears.

So we suffered from a "profit squeeze." Who made the squeeze? We did—not our customers, because our customers used 35 million tons and were perfectly willing to pay the market price, *no matter what that price was.*

These customers needed 35 million tons of paper to use in a thousand ways to carry on their own businesses. They had to have that much, regardless of price, because paper is a necessity and paper is an infinitesimal cost in their overall picture. They bought what they needed and they wouldn't have used one pound more if we gave it to them, and we almost did. So, if we as an industry didn't make enough profits, it was not from lack of demand. It was just simply that we didn't ask enough for our product.

Confusing Production and Merchandising

Why didn't we? Because too many bosses are pushing too many salesmen to make a try for all the business instead of defining what they could best handle, how much they could get as their fair share and what part of that would be profitable now and in the future.

What I'm saying is, that mills and merchants have confused production with merchandising and have created a fetish of tonnage. Mills must run full, merchants are judged by the tonnage they sell, we must at all costs keep the machines running six days a week for sure, preferably seven days. It isn't tonnage that keeps the wheels turning and supplies the new machinery and the jobs, it's net profit after taxes! You can't eat tons!

"The one great axiom which could be the simple answer to most of our problems is 'YOU CAN'T GET ALL THE BUSINESS'."

And I say to you, that the way to live with excess capacity is to forget it's there. Excess capacity is not over-production. It is not a slug of paper eating it's head off in the warehouse. It is a much needed reserve, the insurance that we have something to sell, that we can grow and have more paper when we need it. It's an aid to good merchandising, not a threat!

Reserve Capacity Needed

We merchants are in the business of convincing customers that we and our selected mills are a good and reliable source of supply for their present needs and for their future needs. How can we sell a customer that, and then tell him, "Sorry, but our mill is filled up. We'll have to give you something else."

We must have a reasonable amount of reserve capacity and our paper should be priced for a profit with reserve machine time in the price. When the reserve is called on, it should provide extra profits, the gravy and dessert, not the meat and potatoes and bread and butter of our business.

When our industry faces this problem squarely and understands it, then, and then only, will we have come of age. So far we haven't and we have let these new machines scare us into an orgy of price-cutting. Now price-cutting is a disease which is contagious, destructive and generally unproductive.

So we must have a list price in order to cut it and, therefore, we don't cut the other fellow's price, we cut our own, often unnecessarily. Any listed price is based on cost plus a markup designed to cover overhead and produce a reasonable profit. Anything less means either we were too grasping in our idea of a reasonable profit or it means we don't want any profit.

Because there are no secrets anymore in our industry, and because it is very competitive in the sense that too many salesmen are trying to sell virtually the same products to the same buyers, prices, whether list or otherwise, tend to seek a level. Because costs of manufacturing and costs of selling are pretty uniform, list prices are fairly uniform, too.

Now, most paper is bought and sold at list because competition has insisted that list prices be no more than a fair return to the seller and most buyers are perfectly willing to pay that fair return for services rendered. So all paper should be sold at list—always. It is, when mill capacity and consumer demand are in balance.

Price Cutting

But when a merchant can buy more than he can normally sell and when a mill can produce more than he is selling and when they both see costs rising and profits shrinking, they get itchy. If they would both go out together and create new uses for paper, everything would be lovely. But they aren't smart enough or are in too much of a hurry, so they attempt to steal someone else's business by making price concessions.

Rarely is this successful. Surprise price concessions may steal an order or so but invariably result in retaliations which not only tend to, but will end up in a leveling off at lower price levels.

So a little itchiness soon leads to jitteryness and the price of paper goes down in the market place, not down to where it should be, it was there already, but down to a level where no one is making sufficient profits. If this situation continues, we all suffer and most of all, the consumer will suffer. He will pay a little less for his paper perhaps, but he is willing to pay more for the service and quality he needs, but won't get.

Meanwhile, we mills and mer-

(Continued on page 38)

"So we suffered from a 'profit squeeze.' Who made the squeeze: We did—not our customers, because our customers used 35 million tons and were perfectly willing to pay the market price, no matter what that price was."

WHEN "CHANGE" IS THE WATCHWORD

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Fabric and fashion illustrations courtesy of E. I. du Pont de Nemours & Co., Inc.

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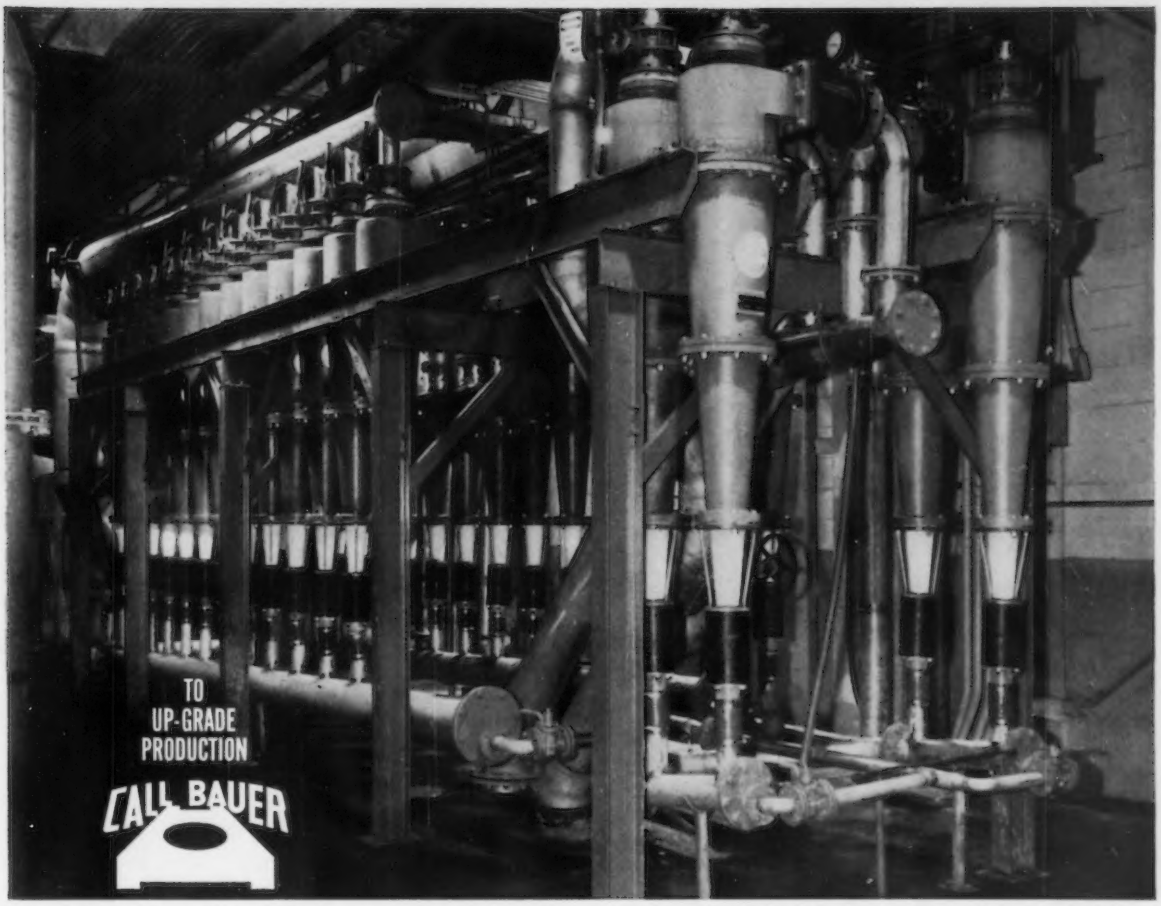

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What's Wrong . . .

(Continued from page 34)

chants are having a field day. In New York we never cut our list price, we just move over a few brackets. When we get past carloads, we don't have anymore brackets to move so the mills invent some. They will sell carload spot orders direct at merchant cost or kindly allow the merchant a 3% selling commission. 3% selling commission! Well, ain't that great! That won't even pay for drinking whiskey.

Mills also invented seconds, job-lots and start-up tonnage, when the merchant cost bracket got too high.

"So, if we as an industry, didn't make enough profits, it was not from lack of demand. It was just simply that we didn't ask enough for our product."

"It isn't tonnage that keeps the wheels turning and supplies the new machinery and the jobs, it's net profit after taxes! You can't eat tons!"

Every ton of this kind of business replaced a legitimate order which could have produced a legitimate profit for both the mill and his distributor.

How dopey can we get?

Merchant Mergers and Acquisitions

We're faced with a rush of so-called mergers. It's getting to be fashionable. Maybe we all should do some merging, too, before it's too late. If we don't are we going to be left out in a cold, cold world? That all depends.

In the first place, there are mergers and then there are mergers. My definition of a merger is two companies getting together, pooling their finances and resources, their personnel and their abilities, to make a bigger and a stronger company than either was before. This can be good if you pick the right combination.

There is another form of merger, so-called, which is really an acquisition. It can be chain houses adding to their chain, mills buying merchants or converters or printers or other mills, in order to prove something, darned if I know what. Maybe this is good, maybe it isn't, but certainly all of it is upsetting to us who thought we had things all figured out and were set in our ways.

If you own or control your own business and if you have an up and coming sales force, good management, your son or son-in-law is hot stuff and loves the business, if you have good policies, good mill connections, satisfied customers and can finance your business yourself or have a willing bank, then if I were you I wouldn't sell out or merge for all the tea in China. You can beat the stuffing out of any big combination which is necessarily handicapped by its very size, and it's fun to be successfully independent.

There are a hell of a lot of good mills left that don't want any part of owning merchants and there are a hell of a lot of good customers that like your intimate knowledge of their business and the interested personal service you can give them.

Don't sell yourself short!

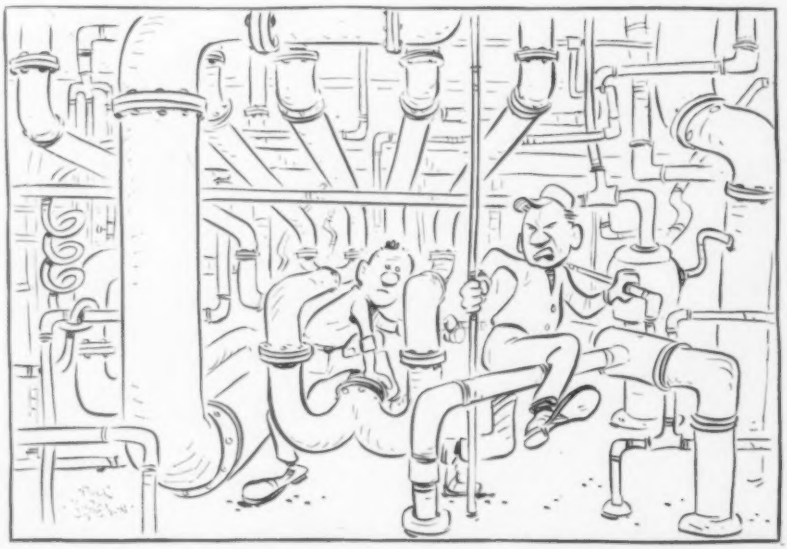
If your salesmen are all over 65, your management is tired, you haven't enough capital or credit and you have no good mill connections, brother, you'd better sell out or merge—if you can—if it isn't already too late.

If you are somewhere in between, the right kind of a merger with the right house might well help you and help the house you merge with, if you can be sure there are definite advantages you can see ahead. If you can't see advantages don't do it! So much for real mergers. Now for selling to a chain operation or to a mill.

Selling to a Chain or Mill

I think this happens mostly because of family finances. Most independent merchants are closely held, usually family owned. There is no real market for their stock and when the family dies out or retires, said family sooner or later will be faced with a ruinous inheritance tax. It can ruin the business, too. So they sell out to a chain or to a mill. These sales are rarely for cash, usually it is an exchange of stock. If the exchange is for mill stock there is probably a public market for any part of it the family needs and after six months it is capital gains. If it is another chain, the stock might still be more saleable or it might grow to someday be on some stock exchange. Certainly the responsibility for management has been passed on to broader shoulders but so has the control of the business. Still, it's not hard to see why families sell their businesses. Why mills buy merchants is another story too long for this talk and I'm not sure I know why anyhow.

From an address delivered May 9, 1961, before the 38th Annual Convention of the Southern Paper Trade Ass'n. and the 16th Annual Meeting of the Southerners, Inc.



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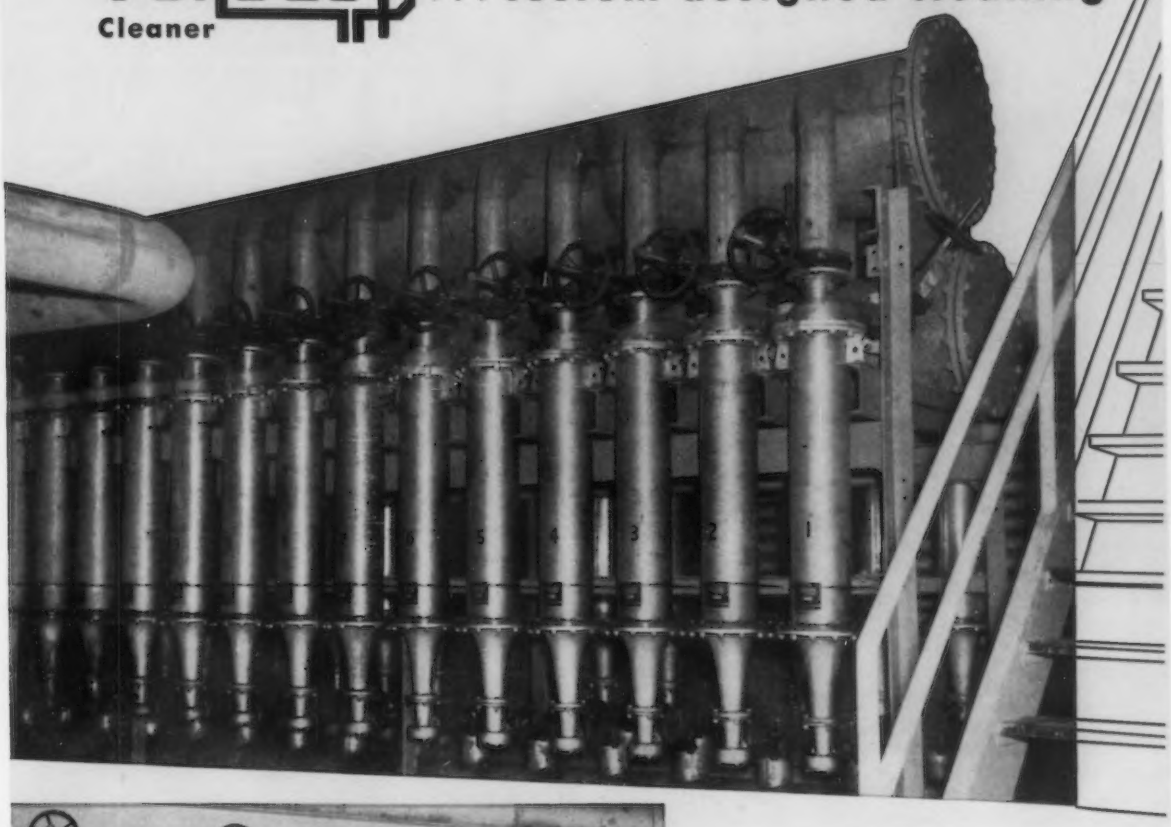

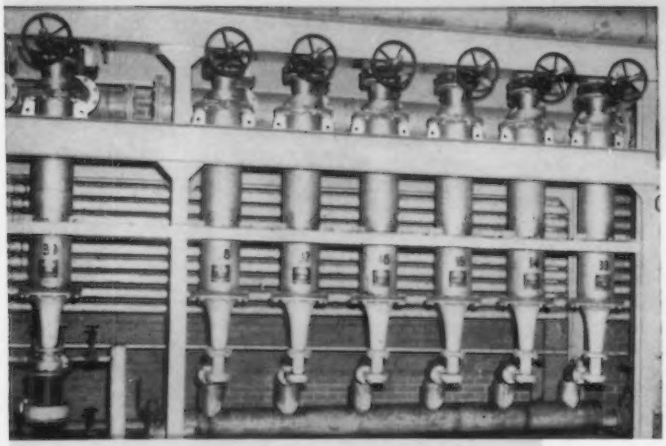

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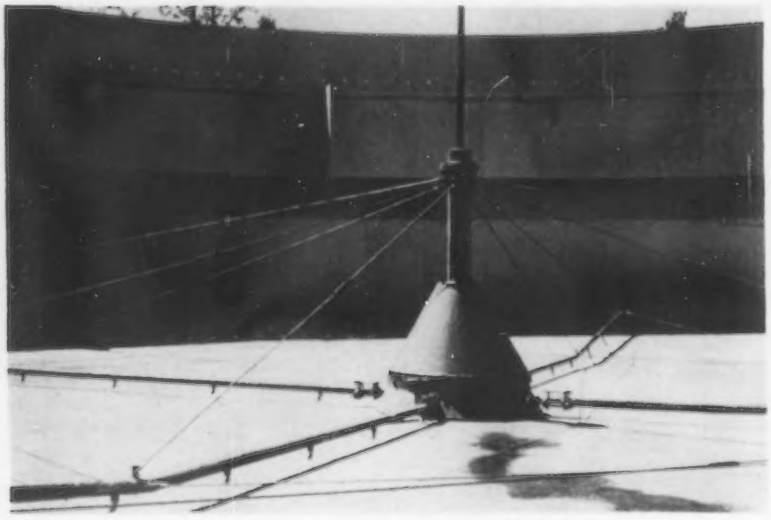


Agitator for Water Clarifier Requires No Motors

The Permutit Co., a division of Pfaudler Permutit Inc., has released details of its water-jet powered precipitator, a solids-contact type water clarifier designed for the pretreatment of rain water.

Designated the type M precipitator, the clarifier is described as a sludge blanket type, in which the jet effect of water ejected from the tips of the agitator is the sole driving power required for the agitator unit. This design eliminates both the electric motors commonly needed in this type clarifier and the catwalks and bracing usually required for support and access to the motor. The agitator of the type M Precipitator rotates on a stub spindle and requires no overhead support.

In operation, raw water and chemicals are pre-mixed and introduced to the precipitator through an inlet at the center of the tank beneath the agitator hub. A conical deflector, on the agitator hub, directs the water-chemical mixture outward across the tank bottom. Reaching the tank wall, the fluid mixture tends to rise but is redirected back to the center by a horizontal baffle on the tank wall. In this manner, a rolling current pattern is established.

Water chemicals and sludge are kept in intimate mixture for maximum precipitation. A sludge blanket is thus formed and maintained in suspension. Sludge and heavy particles settle to the bottom, clarified water is drawn off the top of the tank.

In addition, the design of the agitator arm, which includes a number of supplementary jets that drive precipitated sludge outward from the center of the tank, has reduced the need for baffling within the precipitator tank.

The type M Precipitator may be installed in existing round basins as well as new tanks.

Operating experience with this precipitator at one mill has shown that it will begin delivering a good quality effluent within a short time after the tank has filled, says Permutit. It has also been found that sudden variations in demand from the plant, a common occurrence, had little or no effect on the quality of effluent water. At its higher flow ranges, a Precipitator accommodates sudden changes in flow as much as 35 per cent. At lower rates the same unit accommodates flow changes of 80 to 100 per cent.

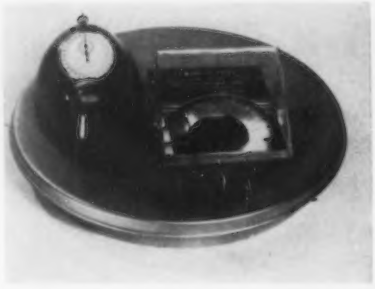
In one instance, a large amount of red dye appeared in the river as the result of upstream dumping. The appearance of the dye in the influent was carefully observed, but there was no significant change in the color of the Precipitator effluent, however sludge from the tank's bottom turned red in color.

The size and capacity of the type M. Precipitator currently operating is approximately midway in the range of sizes in which Permutit plans to build the units. Flow rates will range from 150 g.p.m. to 7,000 g.p.m., diameters from approximately 10 to 100 feet, and depths from 12 to 16 feet. The Permutit Co., a division of Pfaudler Permutit, Inc., 53 West 43rd Street, New York 36, N. Y.

Belted Drives Without Outboard Bearings

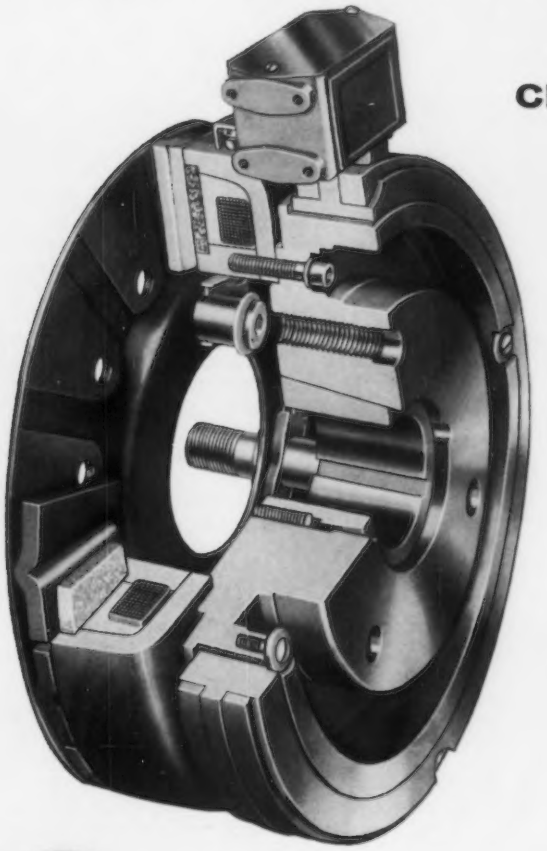
By utilizing oil-lubricated antifriction bearings and narrow width belts, it is now possible to V-belt higher horsepower (up to 350 h.p.) and higher speed motors (1200 r.p.m.) without using an outboard or third bearing according to an announcement by Allis-Chalmers.

Previously, these drives were not possible, it said, because of the limitations of cylindrical roller bearings operating in grease at higher speeds. Now, substitution of the roller bearings for an outboard third bearing is a lower cost premium item that also



CURL SIZING TESTER for testing papers up to ten thousandths of an inch in thickness, features an improved timing system an a totally enclosed liquid container. Conforms to TAPPI Standard T-466 m-46. One side of a sheet is wetted of paper causing that side to expand and to curl. When the wetting liquid reaches the average center of the sheet the curl reverses. The time interval between the instant of wetting the sheet and the instant of reversal is a direct measurement of the time of penetration into the sheet, therefore a direct measurement of the degree of size. Thwing-Albert Instrument Co., Penn St. & Pulaski Ave., Philadelphia 44, Penn.

EATON
DYNA-TORQ®
MAGNETIC-FRICTION CLUTCHES and BRAKES



The Ideal Solution to Exacting Clutching and Braking Problems

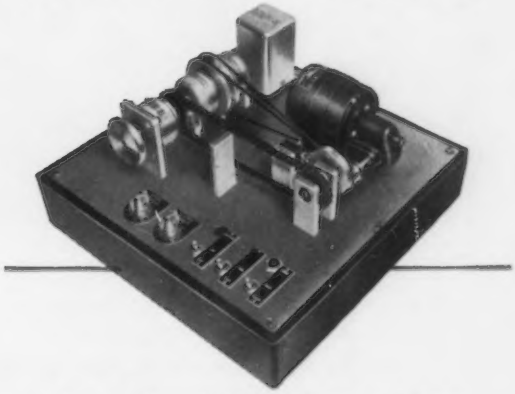
These highly responsive, trouble-free units provide accurate control of intricate automatic machinery. Operating on 6, 12, 24 or 90 V.D.C., Dyna-torQ units may be actuated by micro-switches, photo-electric cells, relays or any "ON-OFF" signal to perform a wide range of functions in processing and fabricating applications. The compact rectifier type control converts AC power to DC power and may be remotely mounted out of busy machine areas.

Eaton Dyna-torQ Clutches and Brakes are available from 1¾" through 15" in diameter. They may be easily and quickly installed on either new or existing plant equipment. Exclusive features of design and construction mean worthwhile savings.

HP @ 1800 R.P.M. *(Typical Application)*

MODEL	HP	MODEL	HP
302	1/20	308	7½
303	½	310	10
304	1	312	20
305	2	315	25

Dyna-torQ Distributors in many principal cities carry Dyna-torQ Clutches and Brakes in stock for immediate delivery.



Ask your Dyna-torQ Distributor to demonstrate Dyna-torQ in action and see for yourself the many possible applications for Dyna-torQ in Motion Control and Power Transmission.

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ACCURATE POWER CONTROL

DEPENDABLE MOTION CONTROL

RAPID RESPONSE • LOW MAINTENANCE COST

EASY BUILT-IN INSTALLATION

WIDE RANGE OF SIZES AND CAPACITIES

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MANUFACTURING COMPANY
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reduces maintenance expenses. In addition, sheaves can be mounted directly on the shaft without removing and then realigning a third bearing.

Design of the oil-lubricated bearings is such that half of the lowest roller or ball in the bearing is always submerged in oil. To keep the oil cool, the oil reservoir chamber is located in the air intake stream. A labyrinth seal is located along the shaft on the inside of the motor to prevent oil leakage into the interior of the motor. Sight gauges on either side of the bearing housing give ready visual indication of the oil level.

Cradle-Mounted Pumps for Corrosive, Non Corrosive Service

A line of cradle-mounted, centrifugal pumps for the chemical industry has been designed by Ingersoll-Rand. They have been designed to meet the requirements of any service handling both corrosive and non-corrosive liquids. Maximum physical interchangeability of parts is provided in pumps of the same size which can be furnished in alloy, ferrous and non-ferrous materials.

Three models cover the line ranging in size from ¼ through 50 horsepower. Delivery range is to 1000 g.p.m. and total head available ranges to 240 feet. The smallest unit complete with baseplate and motor measures 12 x 28 3/16 inches while the largest measures 18 x 61 ⅞ inches.

All pump casings are of vertically split design. Flanged suction and discharge connections are provided on all casings and jacking bolts are provided to facilitate removal of casings and impellers. The cradles use oversized ball bearings of standard design which are oil-mist lubricated. These cradle-mounted pumps may be driven by any dependable source of power through a flexible coupling, gear or belt and sheave arrangement.

Standard packed boxes or mechanical sealing can be supplied. Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

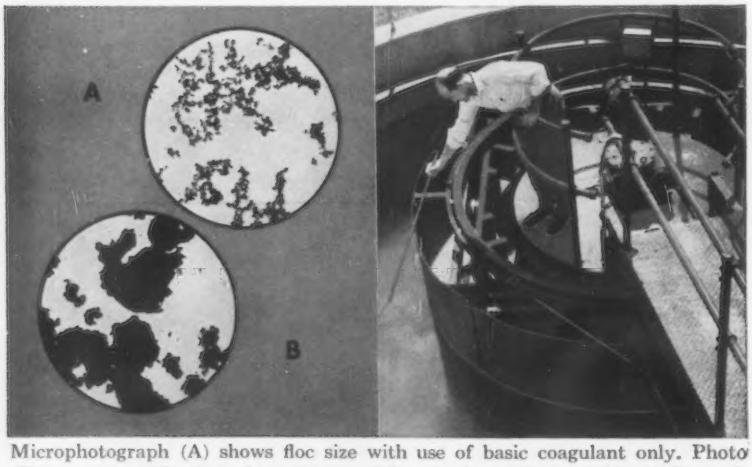
Automatic Broke Removal From Trimmer

The Smith & Winchester Mfg. Co. of So. Windham, Conn., announces its all-automatic "Trimmastre" Trimmer is now equipped with a sliding front table to permit automatic removal of broke created by the knife action. As the knife cuts the paper, the sliding table automatically creates an opening between the front table and the knife, permitting the broke to drop by gravity to the trim removal system. The sliding table pauses momentarily, after completion

A NEW SERIES OF COAGULANT AIDS

MOGUL CLARACEL

★ SPEEDS SETTLING
★ INCREASES EQUIPMENT CAPACITY
★ REDUCES SOLIDS CARRYOVER
★ REDUCES COAGULATION COSTS
★ IMPROVES EFFECTIVENESS OF BASIC COAGULANTS



Microphotograph (A) shows floc size with use of basic coagulant only. Photo (B), same magnification, shows increased floc size by addition of Mogul Claracel.

Seven individual Mogul Claracel formulas are available to solve coagulation problems and improve results in:

★ INDUSTRIAL CLARIFICATION, SOFTENING OR WASTE SYSTEMS
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★ MUNICIPAL CLARIFICATION AND SOFTENING PLANTS

plus special systems or problems including Color Removal, Turbidity or Floc Carry-Over.

Write today for more information and actual In-Plant Case History Reports.

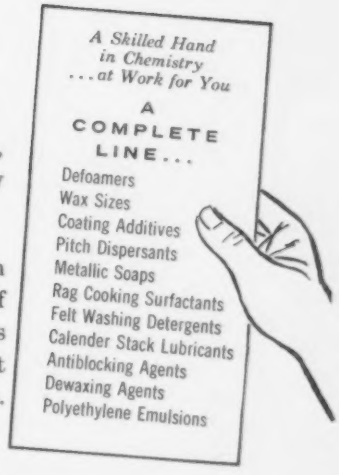
The North American MOGUL Products Company

STANDARD BUILDING • CLEVELAND 13, OHIO

make cleaner paper with NOPCO® DEFOAMERS backed by Nopco know-how

One of the causes of a bad run of paper can be foam. Bubbles that carry fiber, size or color on their surface burst and leave light spots. Those that carry filler or dye leave dark spots. Either way, the sheet won't pass inspection.

Many variables contribute to foam formation. Since each mill has its own distinct foaming problems—because of differences in equipment, type of water, chemicals used and running speeds—it takes a wide range of defoamers to meet them all. Let your Nopco specialist work with you to develop the best system for your conditions. Write for specific information and for literature.



NOPCO® **NOPCO CHEMICAL COMPANY**

60 Park Place, Newark, N.J.

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Mexico • France
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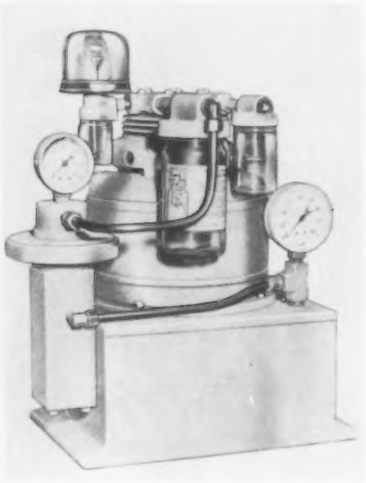
of the knife operation to assure all broke is removed before retracting to its original position against the knife.

The manufacturer states their automatic broke removal system permits increased production as the operator is relieved of manual handling of the broke, allowing greater time saving and concentration of turning the ream and operating the knife. The automatic broke removal is only used when trimming. On cut sizes this system would be on "off" position. The Smith & Winchester Mfg. Co., South Windham, Conn.

Hydraulic Web Guide Features Automatic Pilot Control

Model PH-55 Hydraulic Web Guide with automatic pilot control has been designed so that no adjustments are needed, and the problems of "chattering" and "hunting" are said to be eliminated. The PH-55 features positive web corrections to within plus or minus .010 inch. The power unit is completely integrated, containing an oil reservoir, oil pump, motor, and air source for pressure or vacuum sensing head. The unit is available for various working pressures to meet most any requirements. Vacuum, pressure, mechanical and photo-cell web positioning sensing heads are all available with the completely adjustable sensing head bracket.



A double action hydraulic power cylinder with a capacity of 15 tons is attached to a completely shiftable unit at the unwind or rewind ends of the operation, and automatically shifts the roll of material to re-align the web. Stanford Engineering Co., Salem, Ill.

Prices of Fibers

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT
WEEK ENDED JUNE 13

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	7.50/7.00
3	$7.50/7.00	$7.50/7.25	$7.50/7.00	6.75/6.50
4	7.00/6.25	6.50/6.25	6.50/6.25	6.00/5.75
5	6.25/5.75	6.00/5.75	6.00/5.50	5.25/4.75
6	5.75/4.75	5.50/5.25	5.25/5.00	4.50/4.25
7	4.75/4.25	4.75/4.50	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	June 19	June 19	June	June
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	16.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	17.00/ 18.00	18.00/ 18.50	18.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	28.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	30.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	42.50/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	45.00/ —
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	37.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	45.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	27.50/ 30.00
White Newsblanks	42.50/ 45.00	35.00/ 40.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	40.00/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	55.00/ 60.00	60.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	35.00/ —	18.00/ —
White Ledger	45.00/ 50.00	42.00/ 47.00	45.00/ —	40.00/ —
Mixed Book & Mag.†	— / —	— / —	8.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	22.50/ —	8.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

The Mead Corporation, Chillicothe, Ohio, uses FMC Tributyl Phosphate in paper coating formulations.

TBP

(TRIBUTYL PHOSPHATE)

(Photo courtesy of The Mead Corporation.)

defoamer prevents paper defects

Defects in paper surfaces can often be traced to foaming of the coating mixture. Foam can carry dirt and grime onto the paper . . . cause specks and dry spots at the roller . . . produce pitting . . . form light spots in colored stock.

FMC's Tributyl Phosphate used as a defoamer in coating mixtures effectively and economically prevents such blemishes. TBP promotes uniformity in appearance and strength . . . leaves no odors or other noticeable residues.

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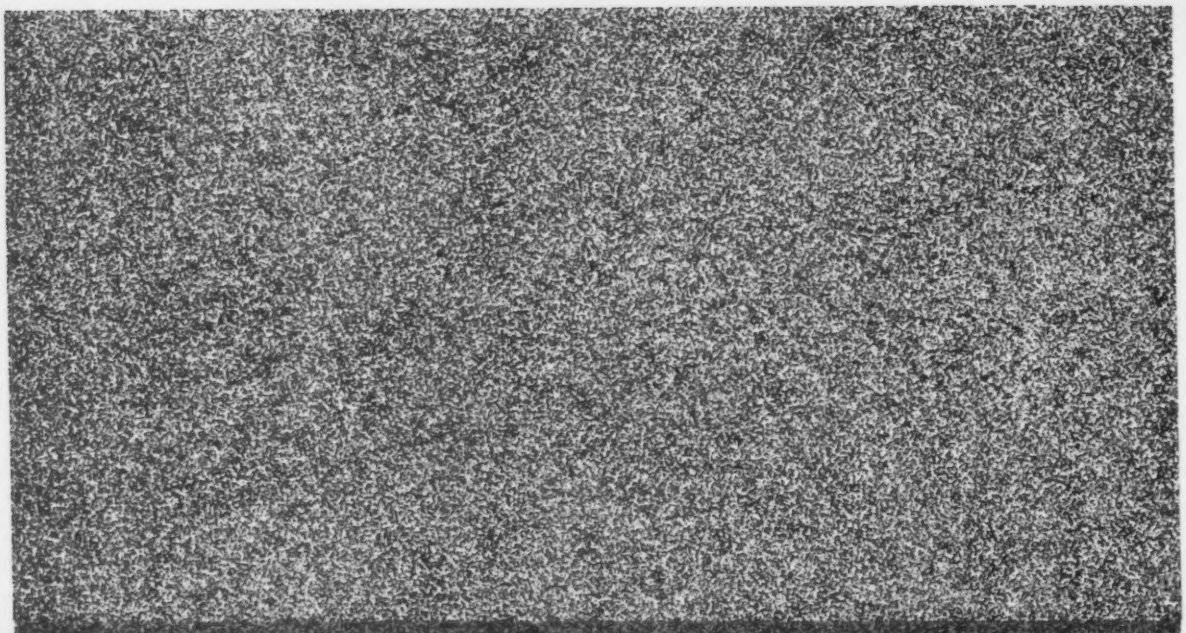


SF HOT TYPE

ELECTROSTATIC PRECIPITATOR

FOR SODA RECOVERY BOILERS

.... makes it possible to clean the gas immediately after the boiler. Svenska Fläktfabriken developed this new precipitator and installs it anywhere in the world.

Among the advantages which the SF Hot type Electrostatic Precipitator provides the economizer, are:

- smaller size . . . . . .
- longer life . . . . . .
- less cleaning . . . . . .
- less maintenance . . . . . .
- constant k-value . . . . . .
- constant draught loss . . . .

10 installations are now in operation or under delivery — among them is

W Rosenlew & Co.,
Björneborg, Finland

For further information write to:
Buell Engineering Co. Inc.
123 William Street, New York 38, N.Y.

AB SVENSKA FLÄKTFABRIKEN
P.O. Box 200 40, Stockholm 20, Sweden

784/1-Reg.440-61

PJT NEW LITERATURE

Flex-Block Sleeve Bearings

Describes two new types of self-aligning and self-lubricating sleeve bearings in flanged and pillow block types. Illustrates how Flex-Blocks have been successfully applied in commercial bakery ovens, live beds in tube rolling mills, heat treating ovens, etc. Bulletin: Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

New Bucket Catalog

Contains data on how to choose the proper clamshell bucket and tables showing the relationship of Erie Buckets to weights of materials and sizes of cranes. Bulletin No. 2L-60. Erie Strayer Co., Rudolph Ave., Erie, Pa.

Stockham Unions and Union Fittings

Gives complete details on designs, weights and dimensions. Advantages—unsurpassed quality, dimensional accuracy, perfect alignment, easy installation and leak-proof joints. Also included are engineering specifications, and information on prices, terms and deliveries. Catalog. Stockham Valves & Fittings, Birmingham 2, Ala.

Temperature Transmitter

Outlines features, specifications and ordering information, on Honeywells pneumatic temperature transmitter which uses either a gas or mercury actuated thermal system, and transmits a standard 3-15 p.s.i. signal in proportion to changes in the measured temperature. Bulletin S-630-1. G. A. Reed, Product Editor, Minneapolis-Honeywell Regulator Co., Industrial Div., Wayne and Windrim Aves., Philadelphia 44, Pa.

Test Gauges and Gauge Testing Equipment

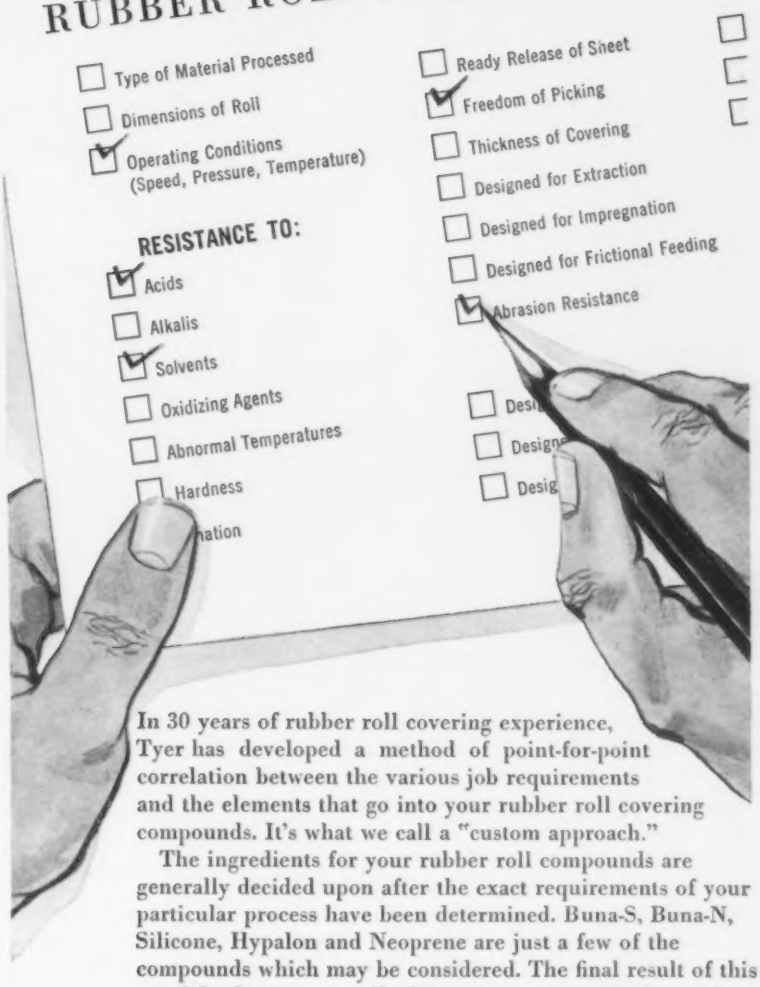
Describes Ashcroft laboratory test gauges, master reference gauges, dead weight testers and test pumps, pocket and vacuum test gauges, and inspectors' test sets. Gauges are used for checking

TYER'S CUSTOM APPROACH TO...

RUBBER ROLL COMPOUND SELECTION

First we check your . . .

RUBBER ROLL REQUIREMENTS



In 30 years of rubber roll covering experience, Tyer has developed a method of point-for-point correlation between the various job requirements and the elements that go into your rubber roll covering compounds. It's what we call a "custom approach."

The ingredients for your rubber roll compounds are generally decided upon after the exact requirements of your particular process have been determined. Buna-S, Buna-N, Silicone, Hypalon and Neoprene are just a few of the compounds which may be considered. The final result of this careful selection are rolls that give you consistently good performance and maximum wear.

Write today for additional information or a visit from a Tyer sales engineer.

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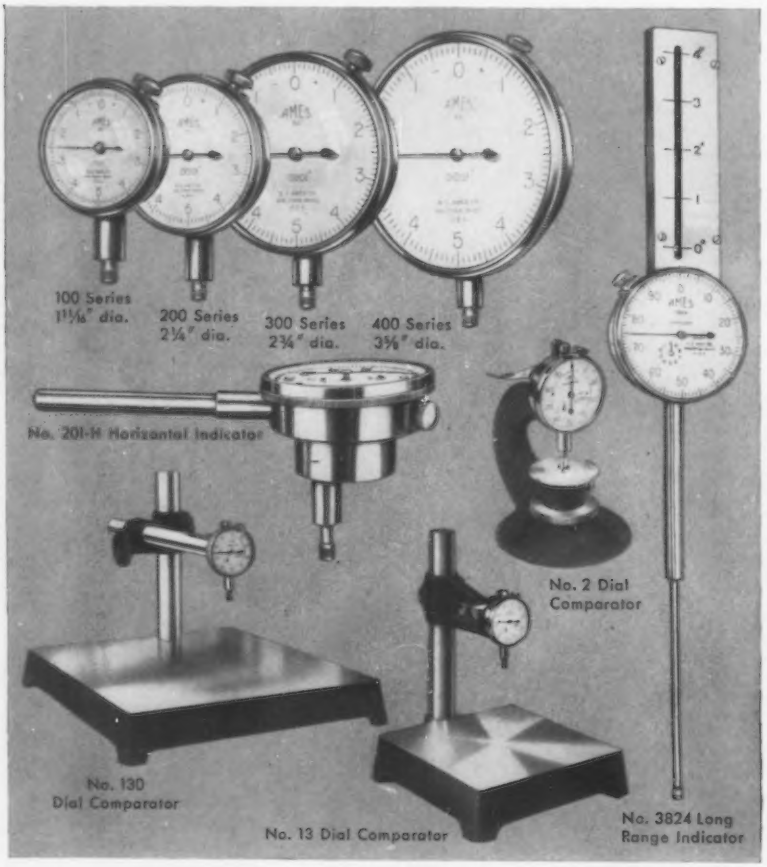
AMES *Masters of Measurement*



Dial Indicators and Gauges

Use Them for Checking: taper, height, depth, flatness, roundness, straightness, thickness, diameter, length and size.

Features Include: easy-to-read dials, unbreakable crystals, forged cases, backs and wheel support, contour-lapped pinion teeth.

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MANUFACTURERS OF MICROMETER DIAL INDICATORS, DIAL GAUGES, ACCU-FLOW AIR GAGES, PORTABLE TRANSISTORIZED COMPARATORS

and calibrating pressure instruments in shop, laboratory, and field. Bulletin 363. Manning, Maxwell & Moore, Inc., Stratford, Conn.

Toledo Automatic Bulk Weighing Systems

Illustrates operation of Toledo bulk weighing systems with easy-to-understand sequence drawing supported by detailed copy. Models are listed; and their many advantages are described. Brochure, Form 2490a. Toledo Scale Div. of Toledo Scale Corp., Toledo 12, Ohio.

Stainless Steel Valves

Included are ball, gate, globe, check, angle, "Y," sampling, tank, and needle valves, and accessories, used in the pulp and paper and other industries where corrosion resistance is required. Valves are shown in a wide range of types, sizes, end connections, and temperature and pressure ratings.

Design features, special operating mechanisms, materials of construction, principal dimensions, and cross-section drawings are covered. Catalog. Valve and Fitting Division., Cooper Alloy Corp., Hillside, N. J.

Vibra Screw Live Bin Feeders

Describes the development, construction details and outstanding features for metering all dry materials. A partial list of more than 250 solid materials that have been metered accurately indicates their wide use in many industries. Bulletin. Vibra Screw Feeders, Inc., 156 Huron Ave., Clifton, N. J.

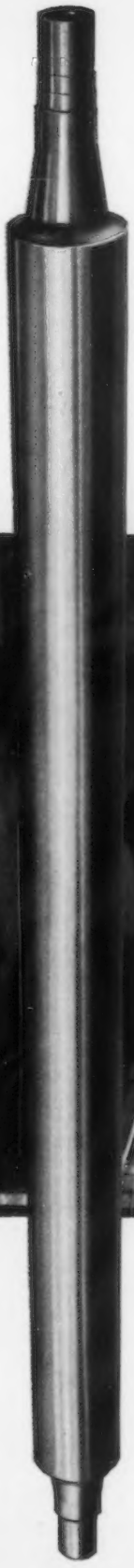
OBITUARIES

J. H. Ainsworth, vice president, Research and Product Development, Noralyn Paper Mills., Inc., Baton Rouge, La., died June 10. Mr. Ainsworth, who was born in Vancouver, B. C., was returning to Baton Rouge via Chicago.

Harry Dubin, 65, retired secretary-treasurer of the Dubin Paper Co. and Hygeia Paper Co., of Philadelphia, Pa., died May 24 at his home.

Ruth Anna Jago, 61, of Narberth, Pa., died May 28 in Bryn Mawr Hospital following a brief illness.

Miss Jago had been associated with Thwing-Albert Instrument Co., Philadelphia, in various capacities for 43 years. Elected secretary of the company in 1938 she became president in 1957.

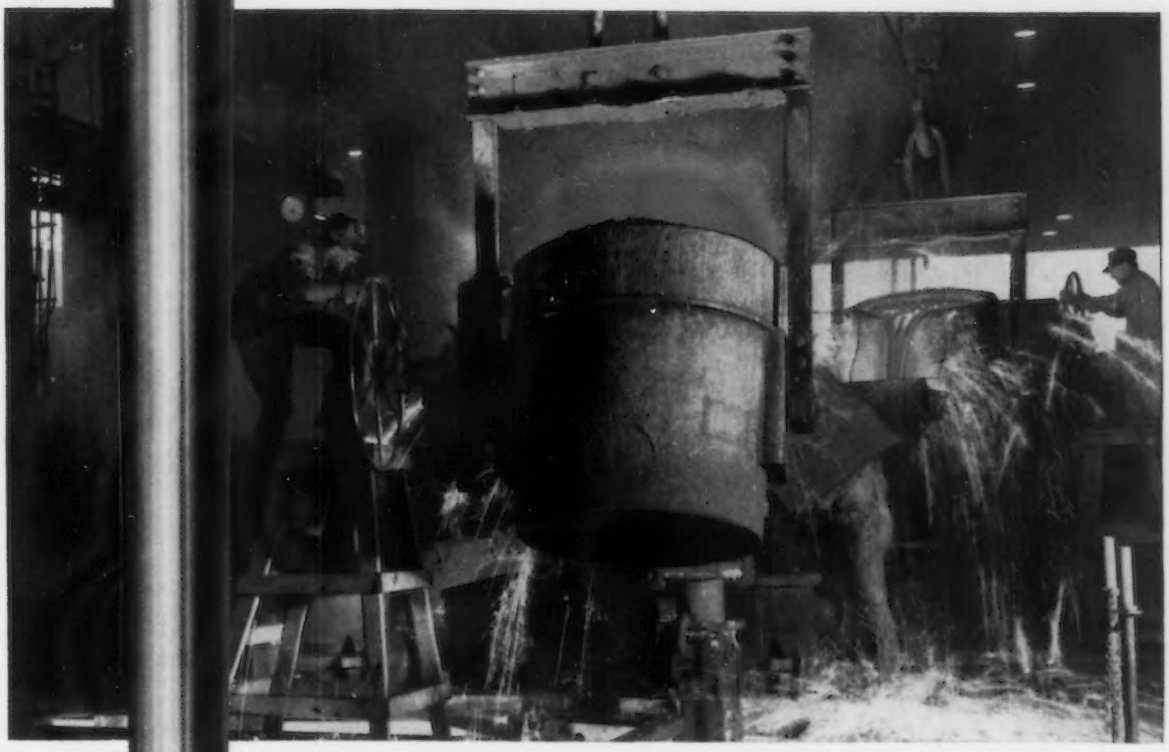


UNITED

CHILLED IRON AND ALLOY CHILLED IRON

ROLLS

FOR PAPER AND ALLIED INDUSTRIES



- CHILLED IRON ROLLS
- MACHINE CALENDER STACKS
- ROLL GRINDING MACHINES
- ROLL CALIPERS
- KNIFE GRINDERS

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TAPPI Lignin Symposium Program

The following technical program for the TAPPI Lignin Symposium has been announced by W. M. Hearon, Crown Zellerbach Corp. The symposium, sponsored by the Wood Chemistry Committee, will feature outstanding workers in the field of lignin chemistry who will present 16 papers on the theme "Lignin—Greater Utilization Through Better Understanding." In addition, there will be a panel discussion moderated by H. F. Lewis, the Institute of Paper Chemistry, on the subject of "Where Do We Go From Here."

A high point of the symposium will be an address by Dr. Holger Erdtman, The Royal Institute of Technology, Stockholm, Sweden, who will speak on the subject "A Chemist Looks At The Forest."

J. R. Salvesen, Marathon Division of American Can Co., is general chairman for the symposium.

The Symposium will be held at the Edgewater Beach Hotel, Chicago, on August 14-16, 1961.

MONDAY, AUGUST 14

Symposium Introduction, J. R. Salvesen, Marathon Division of American Can Co.

Session I

Moderator: W. M. Hearon, Crown Zellerbach Corp.

"The Separation of the Components in Spent Sulphite Liquor" by Waldemar Jensen, Kaj-Erik Fremer and Kaj Forss, Finnish Pulp and Paper Research Institute.

"Determination of Reducing Bodies in Lignosulphonates" by J. Giguere, Lignosol Chemicals, Ltd., Quebec, P. Q.

"Factors Affecting Evaluation of Dispersing Agents" by M. A. Baum, E. E. Harris and R. F. Benning, Marathon Division of American Can Co.

"The Effect of Molecular Size on Surface Active Properties of Lignosulfonates" by J. Benko, Sulphite Pulp Manufacturers' Research League, Appleton, Wis.

Session II

Moderator: A. S. Gregory Weyerhaeuser Co.

"New Utilization Prospects of Sulphite Liquor in the Federal Republic of Germany" by Wolfgang H. Gloz, Chemische Werke Zell-Wildshausen G.m.b.H., Dusseldorf, Germany.

"Studies on the Chemistry of Aspenwood. XIII. The Ether-Soluble Portion of Spent Sulphite Liquor from Authentic Quaking Aspenwood" by I. A. Pearl and D. L. Beyer, The Institute of Paper Chemistry.

"The Oxidation of Lignin Model Compounds and Wood Meal with Chlorine Dioxide and Sodium Chlorite" by C. Dence, State University College of Forestry, Syracuse University.

"IR-Investigations of Lignin—A Discussion of Some Recent Results" by S. Kolboe and O. Ellefsen, The Norwegian Pulp and Paper Research Institute.

TUESDAY, AUGUST 15

Session III

Moderator: G. H. Tomlinson, II, Howard Smith Paper Mills, Ltd.

"The Precipitation of Lignin from Eucalyptus Kraft Black Liquors" by J. W. T. Merewether, Industrial Chemical Consultant, Ivanhoe, Australia.

"Development of Useful Products from Kraft Lignin" by P. R. Wiley, West Virginia Pulp and Paper Co.

"On the Interaction Between Lignin and Rubber in Lignin-synthetic Rubber Coprecipitate" by Syozo Wada and Hiroshi Mikawa, Kokusaku Pulp Industry Co. Ltd., Tokyo.

"Lignin and Plastics" by K. Kratzl, University of Vienna and Austrian Wood Research Institute.

Session IV

Moderator: F. J. Ball, West Virginia Pulp & Paper Co.

"The Degradation of Lignin by Alkali" by Josef Gierer, Swedish Forest Products Research Laboratory.

"The Demethylation and Degradation of Lignin or Spent Liquors by Heating and Alkaline Reagents" by Terje Enkvist, Johannes Turunen and Theodore Ashorn, University of Helsinki.

"Sulphur Chemicals From Lignin" by W. M. Hearon, W. S. MacGregor and D. W. Goheen, Crown Zellerbach Corp.

Banquet Speaker: Holger Erdtman, The Royal Institute of Technology, Stockholm, Sweden.

WEDNESDAY, AUGUST 16

Session V

Moderator: D. L. Brink, University of California, Forest Products Laboratory.

"Lignin Liquefaction by High Pressure Hydrogenation" by Motoyoshi Oshima and Kan Kashima, The Noguchi Institute, Tokyo, Japan.

IPC Awards Ph.D. and Masters Degrees

Ten Ph.D. degrees were awarded to graduates of The Institute of Paper Chemistry in Appleton, Wis., June 11, at commencement exercises of Lawrence College. This brings to a total of 187 the number of Ph.D. degrees provided by the Institute since its founding in 1929.

Twenty-one Master of Science degrees were awarded this year. All but three will continue study at the Institute toward their Ph.D. degree. The three terminating their study are entering directly into the pulp and paper industry. The last M.S. degree awarded at this year's commencement was the 300th given by The Institute of Paper Chemistry, and went to Lyman K. Woodbury, Jr., of Portland, Me.

Winner of the Westbrook Steele gold medal award for the outstanding research thesis of the year was Ronald Estridge of High Point, N. C.

With the entrance of the ten Ph.D. degree recipients and the three M.S. recipients who are terminating their study, The Institute of Paper Chemistry's alumni body now numbers 440, including 57 who were special students. Over 80 per cent of the Institute's alumni are in pulp and paper or allied industry, according to Dr. Edwin R. Laughlin, secretary of the Institute's alumni association. Listed among the Institute's alumni in the pulp and paper industry are the presidents of five companies, the board chairman of one company, 21 vice presidents, and 55 research or technical directors.

PH.D. DEGREES

Those receiving Ph.D. degrees this year and the title of their thesis research were: F. Cowan, Montreal—"Investigation of Hot Surface Drying of Glass Fiber Beds."; D. B. Easty, Avon Lake, Ohio—"Synthesis and Acid Hydrolysis of Methyl Alpha-D-Glocopyranosiduronic Acid."; R. B. Estridge, High Point, N.C.—"Initial Retention of Fibers by Wire Grids."; S. C. McKee, Longview, Wash.—"Investigation of the Hydrolysis of a Reduced 4-0-Methylglucuronoxylan."; I. B. Sanborn, Pep-

perell, Mass.—"Study of Irreversible Stress-Induced Changes in Macro-Structure of Paper."; R. L. Schneider, Lakewood, N. Y.—"Enzymatic Dimerization of Substituted Phenols."; John H. Schulz, New York, N. Y.—"Effect of Strain Applied during Drying on Mechanical Behavior of Paper."; C. W. Spalding, Linden, Ala.—"Absorption of Chlorine into Aqueous Media in Light of Penetration Theory."; P. C. Trotter, Longview, Wash.—"Action of Sodium Hydrosulphite on Selected Flavonoid Compounds."; W. W. Wadsworth, Fairview Park, Ohio—"Synthesis, Characterization and Attempted Polycondensation of 2,3,6-Tri-*O*-Benzoyl-Alpha-*D*-Glucopyranosyl Bromide."

M.S. DEGREES

Those receiving M.S. degrees were: Richard W. Abrams, Seattle, Wash.; G. Frederic Bayer, Burlington, Wis.; Winfield H. Bearce, Jr., Hallowell, Me.; William C. Bliesner, Eden, Idaho; John A. Church, Richmond, Va.; James K. Crossman, Joplin, Mo.; Thomas C. Elias, Downers Grove, Ill.; Carl A. Jentzen, North Haven, Conn.; Gerald Katz, Winthrop, Mass.; Fred P. Lodzinski, Stevens Point, Wis.; Earl W. Malcolm, Menominee, Mich.; Hiroshi Matsuura, Tokyo, Japan; Richard E. Olson, Chicago, Ill.; Neftali Puentes C., Bucaramanga, Colombia, South America; R. Heath Reeves, Pontiac, Mich.; Richard J. Ross, Mexico, Me.; John B. Snell, Madison, Wis.; George A. Tinti, Norway, Mich.; Gerald F. Touzinsky, Chicago, Ill.; Richard B. Wasser, Oshkosh, Wis.; Lyman K. Woodbury, Jr., Portland, Me.

"When will we be able to afford a slitter?"

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	May 13	May 20	May 27	June 3	June 10
1961	91.7	92.1r	92.6r	89.4r	92.0
	May 14	May 21	May 28	June 4	June 11
1960	98.5	97.8	97.0	96.1	99.1

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.2	91.2	91.6‡								

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	93.6	97.2	101.3	94.8	88.0	92.4	97.4	90.5
Year Average	91.6	96.2	97.9	90.4	87.0	92.2	92.7	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	May 13	May 20	May 27	June 3	June 10
1961	92	93	93	84	94
	May 14	May 21	May 28	June 4	June 11
1960	94	95	93	85	96

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	91	91	91								

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING June 3, 1961	WEEK ENDING June 10, 1961	CUMULATIVE TO DATE Jan. 1, 1961 to June 10, 1961
% Activity	84%	94%	90%
Total	300,899	332,425	7,134,211
Containerboard—Domestic Use	156,754	160,739	3,607,143
Liner	104,963	107,265	2,403,289
Corrugating Material	47,731	48,489	1,091,490
Chip & Filler Board	4,060	4,985	112,364
Boxboard—Domestic Use	89,568	101,497	2,225,236
Folding	52,482	60,783	1,321,018
Set-Up	8,573	9,384	214,125
Special Food Board	28,513	31,330	690,093
Other Paperboard	54,577	70,189	1,301,832
Containerboard Type	24,489	36,968	617,064
Boxboard Type	30,088	33,221	684,768
Total Orders			
Received	317,081	351,827	
Unfilled End of Week	447,581	469,154	

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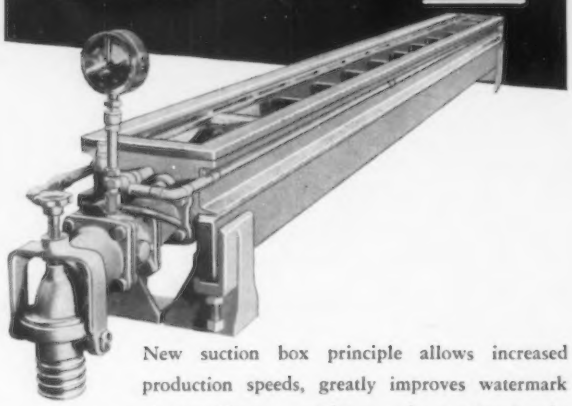

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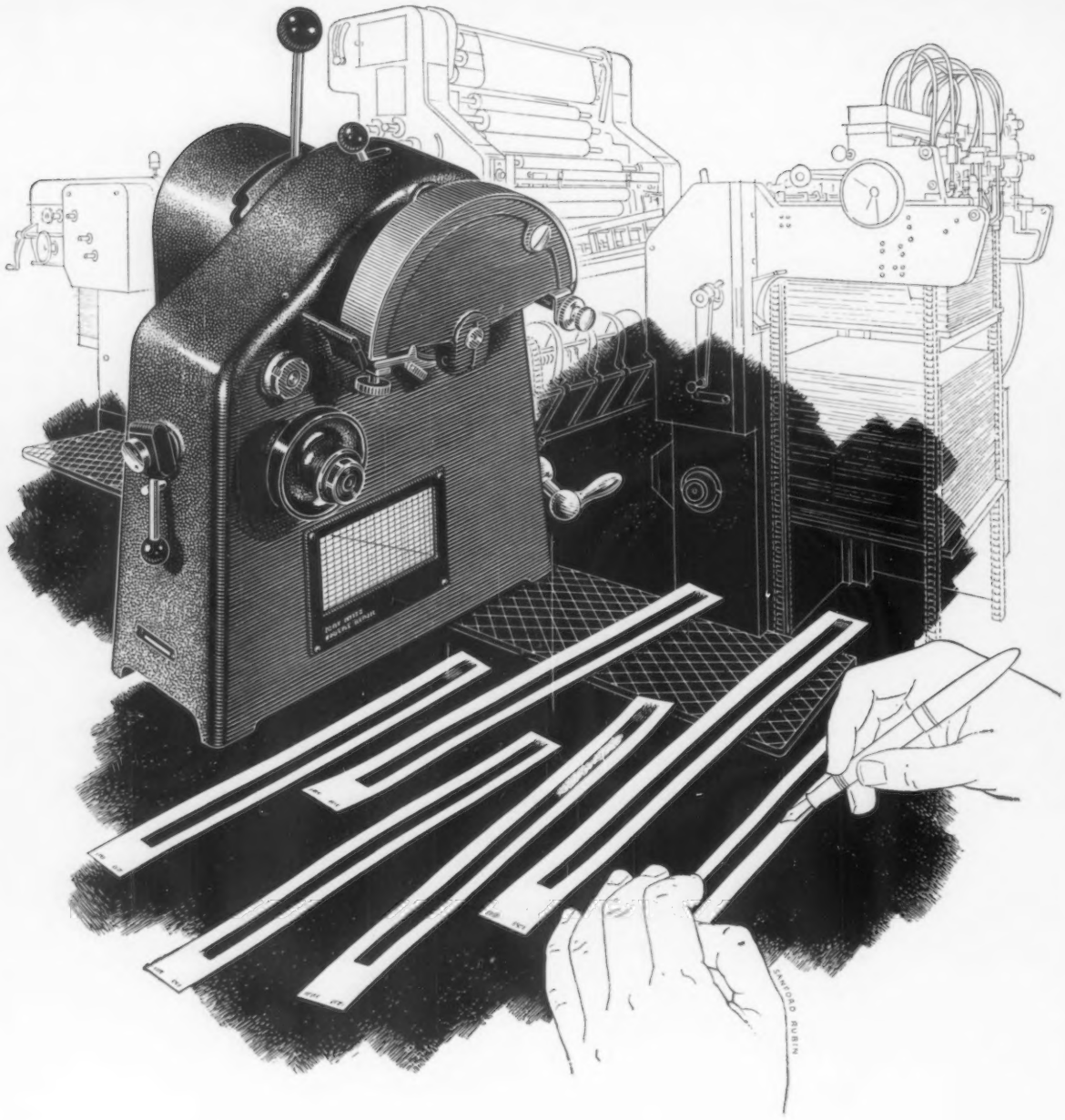

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2— 44″ face; 2—46″ face
3— 70″ face w/gears & bearings
11— 72″ face w/gears & bearings
1— 74″ face Lukenweld w/A-F Brng
8— 75″ face w/gears & bearings
26— 76″ face; complete section
9— 76″ face w/gears & bearings
2— 77″ face w/gears & bearings
1— 78″ face w/gears & bearings
2— 80″ face
5— 84″ face
11— 84″ face; complete section
7— 94″ face; complete section
1— 96″ face
1—138″ face
10—160″ face

42″ Dia.:
23— 73; 74; 76″ face; complete section
46— 96″ face w/gears, frames & bearings
1—120″ face
1—160″ face

48″ Dia.:
49— 46″ face; chrome plated
12— 82″ face; complete section
3— 84″ face
7— 94″ face
1— 96″ face
12— 98″ face—complete section
19—106″ face w/gears & bearings
6—110″ face w/gears & bearings
10—123″ face w/gears, frames & bearings
1—128″ face

EMBOSSERS

1— 80″ Hudson Sharp; A-F Brng
2— 62″ Textile Machinery Co., w/drives

EXTRACTORS ROLLS—DOWNINGTOWN

1—128″ face x 24″ dia.—complete section

FELT CONDITIONERS—VICKERY

1—New Bird—218″ Max. cleaning area

FLAT SCREENS

1— 12 plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

FOURDRINIER SECTIONS

1—Beloit Yankee Fourdrinier section—wire 132″ x 47 ft. 4″. Oper 870 f.p.m. 132″ x 10 ft. Yankee Dryer also available.

"HYDRAPULPER"

1—Dilts 16 ft. Batch type complete w/125 h.p. motor—CI Sectional Tub

INLETS & HEADBOXES

1—131″ Valley w/10″ distributing roll; SS lined

JORDANS

2—Appleton #1 w/A-F Brng
1—Horne w/A-F Brngs
4—Shartle Miami #2 w/A-F Brngs
1—E. D. Jones #4 Imperial A.F. Brng.

LAYBOYS

1—Hamblet 124″—gear motor operated
1—Hamblet 88″—gear motor operated
1—Beck 65″ w/auto lowering device

MOTORS 3 PH 60 CYCLE

1—100 h.p. GE; 440 v; 695 r.p.m.
1—300 h.p. West; 2200 v; 503 r.p.m.
1—350 h.p. GE; 2200 v; 720 r.p.m.: Synch

PAPER MACHINE DRIVES

1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT

1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen, 5 ft x 14 ft.

PUMPS—OPEN IMPELLER

47—Centrifugal Stock and Water Pumps
1—Shartle 8 x 18 Duplex

REELS

1—100″ Kohler automatic two arm unwind reel; 60″ dia rolls; new condition
1—109″ two bowl upright
1—123″ Beloit—2 bowl
1—126″ Beloit Aldrich surface drive type
1—146″ B & S pope type w/Reliance drive

REFINERS

1—Jones Fibremaster — SS Filling—200 h.p. motor & controls
2—#1 Claffin; A-F Brng
1—24″ Downingtown Weiner; new
2—36″ Bauer, Model 185 w/2—75 h.p. motors
3—36″ Bauer Model 185 with 2 100 h.p. motors
3—Dilts #4 Hydrafiner—AF Brng.
1—Dilts 36″ Classifiners AF Brng
2—#4 Shartle Cyclifiner A.F. Brng.
1—Bauer Double Disc Model 410; w/two 400 h.p. motors, feeder and drainage conveyor, S.S. construction—like new
1—48″ Sutherland—S.S. Discs
2—42″ Sutherland—S.S. Discs

ROLLS

483—R. C. Couch rolls. S.S. distributor rolls; chilled iron calender rolls, breast rolls, press rolls, felt rolls. Forward your requirements.

ROLL GRINDERS

1—124″ x 30″ Farrel w/crowning device
1—208″ x 32″ Farrel w/crowning device

ROTARY SCREENS

5—Bird #3A, Model 100 w/copper vats
1—Jones Leithwalk copper lined

SHEETERS—ROTARY KNIFE

2— 45″ Beck w/Jogger
6— 56″, 60″, 66″ & 70″ Hamblets
1— 65″ Kidder w/elec. eye and layboy
3—72″ Hamblet w/M&W Layboy
1— 76″ Beloit Duplex
1— 82″ Hamblet
2—82″ Hamblet w/overlapping M&W Layboy
1— 85″ Hamblet duplex w/layboy
1— 88″ Hamblet single knife; AF brngs; w/motor operated layboy & 10 roll Stevens back stand.
1— 88″ Hamblet Duplex w/motor oper. layboy and 4 roll back stand.
1—105″ Hamblet
1—112″ Beloit Duplex Board Cutter; A-F Brng

SLITTERS & REWINDERS

173¼″ Maximum Rewind Diameter
2— 26″ Cameron Type 24
2— 42″ Cameron Type 26-2A

24″ Maximum Rewind Diameter
2— 42″ Cameron Type 6
1— 42″ Cameron Type 6 Shear Cut
2— 62″ Cameron Type 6
1— 72″ Cameron Type 9-5

30″ Maximum Rewind Diameter
1— 52″ Cameron Type 10; A-F Brng.
1— 60″ Langston Shear Cut

36″ Maximum Rewind Diameter
1— 82″ Cameron—Model 10-10

42″ Maximum Rewind Diameter
1— 40″ Egan Shear Cut; A-F Brng
1— 60″ Kidder Model SH Low Bed
1— 72″ Beloit Shear Cut
1—136″ Cameron Type 18; A-F Brng
1—161″ Cameron Type 18 w/60 h.p. Reliance VS Drive

48″ Maximum Rewind Diameter
1— 86″ M & W Four Drum Shear Cut
1—152″ Langston Shear Cut

60″ Maximum Rewind Diameter
1—112″ Cameron Type 18
1—120″ M & W two drum w/75 h.p. drive
1—120″ Langston
1—136″ Langston; AF Brng; shear cut

SLITTERS & REWINDERS—DOUBLE REWIND

30″ Maximum Rewind Diameter
1—42″ Essex Shear Cut; A-F Brng

STOCK CLEANERS

2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2″ & 6″ bronze
1—Bird Dirtec 12″. Rebuilt by Bird
21—4″ Vortraps—Bronze

STOCK REGULATORS

2—Braemer SS; 25 t/d cap; Foxboro controls
2—Poirier; 25T/D cap

SUCTION COUCH ROLLS

1—125″ face x 18″ dia—bronze brng
1—144″ face x 30″ dia—roller brng

SUCTION EXTRACTOR ROLLS—DOWNINGTOWN

1—126″ face x 22″ dia; complete section
1—134″ face x 18″ dia.; A-F Brng

SUCTION PRESS SECTIONS

1—114″ face x 20¼″ dia. R. C. Complete section
1—120″ face x 18″ dia—R.C.—Roller brng
1—126″ face x 24″ dia. R.C.; A-F Brngs.

SUPERCALENDERS

2—30″ Norwood 4 roll
1—53″ Norwood, 13 roll, glassine; A-F Brngs
2—63″ Norwood 8 roll; A-F Brng
1—92″ Norwood 7 roll w/drive

TOWEL FOLDERS

1—Hudson Sharp 50″, single fold—towel
1—Paper Converting single fold—towel

THICKENERS

1—Shartle—Cylinder 131″ x 36″—16″ Couch
1—Shartle—Cylinder 36″ dia. x 72″ face

TRIMMERS—POWER BACK GAUGES

1—50″ Seybold Twentieth Century
1—65″ Seybold Dayton
3—84″ Seybold Daytons
1—Challenge 34″ w/motor

UNWIND STANDS—CONSTANT TENSION

1—34″ Cameron Type CT—Electric Eye
1—72″ Cameron—w/c brake—air operated
1—82″ Cameron—w/c brake—air operated

VACUUM PUMPS

8—H-4, ½H-5, & H-5 Nash
2—L-5 & L-7 Nash
5—#2, #4, & #7 Nash Hytors
1—8 x 10 Connersville
2—MD-2 Nash w/motors; new laboratory models

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DICALITE®
TECHNICAL REPORT
DICALITE DEPARTMENT • GREAT LAKES CARBON CORPORATION • 612 SO. FLOWER ST., LOS ANGELES 17, CALIFORNIA

New Dicalite BULK-AID for Paper Products

Dicalite BULK-AID is a new development in inorganic fillers, with particle size range and distribution carefully controlled to give maximum bulking characteristics in paperboard and paper products. BULK-AID has the lowest apparent or bulk density of any known mineral filler for papermaking use, thus providing required caliper at lower weights. One example is that of a 40-point groundwood sheet whose weight was reduced from 29.2 lbs/ft³ to 27.3 lbs/ft³ by the addition of 10% BULK-AID.

The light weight and bulking characteristics of BULK-AID make it especially suitable for use in paperboard; its high brightness and excellent retention are also of considerable value. BULK-AID lowers the furnish cost and increases pulp mileage in top liners for patent white paperboards. Its brightness and opacity raise the quality of underliners at the same time it extends the furnish.

Dicalite BULK-AID is an amorphous mineral, technically an aluminum silicate, produced from a volcanic mineral known as perlite by a special process developed by Great Lakes Carbon Corporation. BULK-AID is inert, insoluble in water, acid or mild alkalies. It is grit-free, and exhibits no reaction with alum in sizing or with other papermaking chemicals. It is readily dispersed in any furnish, does not cause foam, and will not fill felts.

Among BULK-AID's physical characteristics are these:

Color: White
Average G.E. Brightness: 83

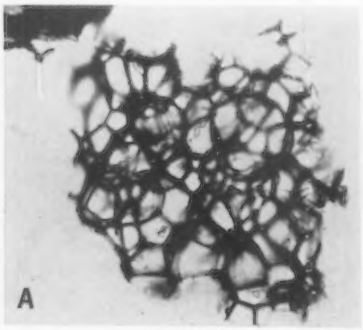
Loose weight: 4½ lbs/ft³ average

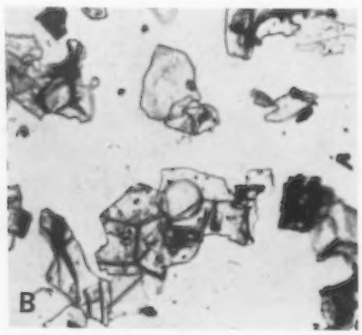
Bulk densities in paperboard: 15 lbs/ft³ average.

Particle size: 80% less than 10 microns

Extensive testing has shown BULK-AID to be successful in actual paper mill production. Most of these tests were on cylinder machines for paperboard production, but limited tests indicate its value in many slow speed fourdrinier applications.

Your Dicalite engineer will be glad to discuss BULK-AID with you and to advise on possible product applications in your own plant.





When perlite is crushed and then suddenly heated to the proper point in its softening range, it pops like corn into particles like that shown in photomicrograph A, containing a myriad of microscopic sealed cells. The size of the original particle and the application of heat are both important, and are critically controlled. This is the expanded material from which BULK-AID is produced. Controlled milling and air classification by an exclusive Great Lakes Carbon Process are the major steps in making BULK-AID, typical particles of which are shown in photomicrograph B.

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Gordon G. Halvorsen

DICALITE'S "MAN ON THE SPOT"

The development of Bulk-Aid, to meet the industry's need for an extremely low density bulking agent, was initiated by Gordon Halvorsen, Product Sales Manager for Dicalite, and he has been closely identified with its tests and product application work from the beginning.

Halvorsen has an extensive background in research and development work, beginning with his graduation from the University of Minnesota with a degree in Chemical Engineering. Prior to joining Great Lakes Carbon in 1940, Gordon had been engaged in technical and laboratory work in the pharmaceutical, corn processing and water treatment fields, and continued his research work in the Dicalite product laboratories for the first 5 years of his association.

Halvorsen is the author of several technical papers, and has contributed to both paper industry and brewing publications. Among his technical society memberships he lists TAPPI, American Society of Sugar Beet Technologists, Master Brewers Association of America, and others in the brewing and drycleaning fields.

NEW DATA SHEET

on Dicalite *BULK-AID* gives more complete information on physical and chemical properties, and on its advantages in papermaking. Write for your copy to Dicalite Dept., 612 So. Flower St., Los Angeles 17, Calif.